

## INSIDE DOPE

by GEORGE F. TAUBENECK

Stories of the Week  
Gags of the Week  
Quotes of the Week  
Taxes and the American Home  
?????

New Versions of Abe Lincoln's  
Gettysburg Address  
Sensible Thoughts

### Stories of the Week

Fellow from New York twitted a  
Vermonters:

"How come there are more cows  
than people in your state?"  
"Mebbe we like cows better."

"Mean to tell me you've lived in  
this jerkwater place all your life?"  
"That's right, stranger. And I  
like it."

"But there isn't enough to do  
around here to keep a man busy."  
"That's what I like about it."

### Gags of the Week

You can call a woman a kitten,  
but not a cat. She likes to think  
of herself as a little mouse, but don't  
dare call her a rat!

She's a chicken, yes; but rarely  
a hen. Often she's a duck; never a  
goose. And she's a vision, too; but  
in her opinion female competitors  
are a sight.

Young men like to fiddle around  
before making overtures.

When you feel old while the even-  
ing is still young, you're in Middle  
Age, brother.

### Quotes of the Week

"Advertising is a most highly de-  
veloped form of salesmanship, using  
a world of word and picture devices  
in its basic effort toward mass per-  
suasion."

"It is an integral part of business  
and industry, and is therefore vitally  
concerned with production, distribu-  
tion, management, labor, raw ma-  
terials, research, marketing, and all  
the other elements that are the back-  
ground of our economy."—LESTER  
RONDELL.

"Work is the only source of secu-  
rity. If we can maintain an econo-  
my in which men can work, and be  
largely free to choose their work,  
we shall do well. If we delude our-  
selves with dreams of security, we  
shall learn that a society which seeks  
to abolish all risks for individuals  
has abolished itself."—LELAND HAZ-  
ARD.

"It takes courage to hold fast to  
your ideals when it causes you to  
be looked upon as strange and pecu-  
liar."—Missionary Tidings.

"The world spends half its time  
praying for deliverers and the other  
half of the time nailing them to the  
cross."—DR. JOS. R. SIZOO.

"War involves in its progress such  
a train of unforeseen and unimagined  
circumstances that no human wisdom  
can calculate the end. It has but one  
thing certain, and that is to increase  
taxes."—THOMAS PAINE.

"The march of Providence is so  
slow, and our desires so impatient,  
the work of progress is so immense  
and our means of aiding it so feeble;  
and the life of humanity is so long  
and that of the individual so brief,  
that we often see only the ebb of the  
advancing wave and are thus dis-  
couraged. It is history that teaches  
us to hope."—GENERAL ROBERT E.  
LEE.

"To have religion go on as one of  
the most divisive and alienating  
forces on earth, as it now is, so that  
religious prejudice and racial prej-  
udices are commonly and correctly  
paired as major curses of mankind,  
will never do."

"Our era calls for a kind of reli-  
gion which will make for unity,  
mutual understanding and brother-  
hood."—DR. HARRY FOSBICK.

"Great men know how to take  
orders. Weaklings whine and grumble  
about them."—FELIX VONTRACKE.

"When bankers are trained to de-  
(Concluded on Page 8, Column 1)

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## Ben-Hur To Have John Sharp Succeeds 'Time' Reports on Freezer Plan, Bans Nance as President, A.C. Industry's Use of 'Wholesale' Gen. Mgr. of Hotpoint Home Market Drive

DETROIT — Dealers who offer freezer-food plans involving Ben-Hur freezers are prohibited from using the word "wholesale" in advertising but they can promote the fact that customers are able to buy food at a discount.

This was disclosed by R. C. Graves, sales manager of Ben-Hur Mfg. Co., in announcing that the company will introduce a freezer-food plan to field men, distributors, and dealers in June and back it up with complete presentation and sales training material. The material includes films, charts, and an instruction book.

Graves said use of the word "wholesale" in promotional material was banned because Ben-Hur's advertising must meet the standards of all Better Business Bureaus in the country.

The company's plan will be based on the one operated successfully by (Concluded on Page 4, Column 4)

CHICAGO — John C. Sharp has been elected president and general manager of Hotpoint Inc. by a board of directors' action, to succeed James J. Nance, who resigned to become president of Packard Motor Car Co.



John C. Sharp

Sharp, who has been with Hotpoint for 23 years, was vice president and chief engineer, and served on the company's management executive committee. A native of Ohio, he was graduated from Ohio State university, having previously attended the U. S. Naval Academy. Before joining Hotpoint he had been with Standard Oil Co.

Sharp has attracted industry attention for studies he directed on high frequency heating and has brought Hotpoint several national citations for major appliance designs developed under his direction.

Packard reached into the appliance field to find a successor to Hugh J. Ferry, who becomes chairman of the board, and selected 51-year-old Jim Nance. Starting with Frigidaire in 1927, he continued with the firm for 14 years, becoming manager of the commercial department. In World War II he served with The War Production Board advisory committee for industry. In 1946 he became chief executive of Hotpoint and took charge of the expansion program which made the company one of the industry's major producers.

## Servel To Concentrate Designs, Sales on '2-Refrigerator' Home

EVANSVILLE, Ind.—Servel plans to devote all of its efforts to specializing in the refrigeration field rather than diversifying its line. W. Paul Jones, president of the company, said here last week as he announced the company is now tooling up for production of a new type household refrigerator designed for use as the second refrigerator in the home.

He said the new refrigerator would go into production by early fall barring unforeseen developments.

Without divulging full details of the new product, Jones said it would be of the electric absorption type and would be a "welcome guest in any room in the house."

"This new refrigerator and a number of other developments that we plan is our answer to those who feel that the present household refrigerator market is uncertain because of saturation," he said.

"A virtually untapped field exists among the millions of households today who have automatic refrigera- (Concluded on Page 22, Column 4)

## Industry Fights Bill To Raise N. Y. Permit Fees

NEW YORK CITY—The refrigeration and air conditioning industry is battling against a bill boosting New York City Fire Department fees, which would drastically raise the annual operating permit fee required for each refrigeration system installed.

Distributors, dealers, and all members of the commercial refrigeration and air conditioning industry are being asked to write to City Councilmen to protest the refrigeration permit fee increase in Introductory Bill No. 714 as a discriminatory tax on refrigeration equipment.

Annual operating permit fees on Class A systems (1,000 lbs. of refrigerant or more) would go up from \$20 to \$50; on Class B systems (30 to 1,000 lbs. of refrigerant) from \$10 to \$25; on Class C refrigerants (from 6 to 20 lbs) from \$5 to \$10; and for systems under 6 lbs. refrigerant, from \$1 to \$3. A new fee would tax each refrigerated carbonated beverage dispenser \$8.

A separate permit fee must be (Concluded on Page 4, Column 3)

## G-E Offers 5-Year Protection Plan on 'Package' Store Coolers

BLOOMFIELD, N. J.—A new five-year investment protection plan on all General Electric packaged air conditioners for commercial, industrial, and office use was announced here by L. E. Thompson, manager of marketing of the G-E Air Conditioning Div.

This plan supports G-E's 1952 campaign to promote air conditioning as a sound business investment, according to Thompson.

Thompson pointed out that a prospect should be sold air conditioning to obtain greater sales and profits (Concluded on Back Page, Column 4)

## Arnall Urges Clarification Of Capehart Amendment

WASHINGTON, D. C.—Office of Price Stabilization Director Ellis Arnall recently recommended to Congress that the Capehart amendment to the Defense Production Act be clarified so that it will definitely not apply to wholesalers and retailers.

Arnall declared that an Emergency Court of Appeals decision that the amendment is not limited to manufacturers, processors, and sellers of services is "a breach in the stabilization dikes."

Arnall indicated that Congress never intended the Capehart amendment to apply to wholesalers and retailers, who have other means of obtaining price relief if needed.

The Capehart amendment allows price increases to cover increased costs to July 26, 1951.

NEW YORK CITY—The air conditioning industry this year is making a concerted attack on the home market, although the approach is through quite a wide variety of products, reports the May 12 issue of Time, the weekly newsmagazine.

While finding that the "industry is shrouded in secrecy and a fog of confusing claims," Time writes on current developments in the industry as follows:

"A new low-cost housing project is rising in Dallas, in which each house is equipped with year-round air conditioning. It is the latest evidence that the young home air conditioning industry is rapidly growing up. In the past five years its sales have skyrocketed from \$19 to \$91 million, and the 18 companies that make home air conditioning hopefully think of themselves as the "Cinderella industry" of the 1950s.

"Because most of the companies make other products as well as air conditioners, the industry is shrouded in secrecy and a fog of confusing claims."

"There are three types of air conditioners: 1) small units that fit in the window and cool only one room, 2) package units which link up with the heating system and serve the whole house, 3) 'heat' pumps which cool or heat the house, in season.

"Feddars-Guigan Corp., a Long Island company which makes air conditioners for RCA and Crosley, says that it has 20% of the market, that with ample materials it may (Concluded on Back Page, Column 2)

## Automatic Defrosting, Year-Round Cooling Head ASRE Program

ATLANTA — Complete program for the 39th spring meeting of the American Society of Refrigerating Engineers to be held at the Biltmore hotel here June 1 to 4 includes 10 papers to be presented at three technical sessions, the Domestic Refrigerator Engineering Conference which will feature eight talks on automatic defrosting, and the Packaged Year-Around Air Conditioning Conference with five formal papers on residential applications.

An innovation for ASRE meetings will also be provided in the Technical Research Exhibit to be staged in conjunction with the Domestic conference to show laboratory methods and equipment.

Even the welcome luncheon on Monday, June 2, will feature a talk on an important problem in engineering — "The Technical Manpower Shortage," to be given by Col. Blake R. Van Leer, president of Georgia Institute of Technology.

And in addition to the strictly technical phases of the convention there'll be such entertainment features as the Southern barbecue and square dance Monday evening, and the cocktail party and dinner-dance Tuesday evening, plus the annual golf tournament Tuesday afternoon.

Papers to be presented at the regular technical sessions will cover various topics, such as "Atomic Irradiation As It Might Affect the Refrigeration Industry," by L. E. Brownell of the University of Michigan; fundamentals of refrigerant piping; evaluating oils and predicting their behavior; freezing of poultry; and the like.

The domestic conference on automatic defrosting will be held in (Concluded on Page 7, Column 1)

## Dealers Use Restraint as Reg. W Ends

Ads Exploit Event But  
Most Stores Keep Reins  
On Credit Terms

DETROIT — With the ending of consumer installment credit controls, dealers and finance companies have lost no time in giving the bum's rush to old man "Big Down Payment." However, they are still not ready to give the customer the rest of his natural life to pay up.

One of the first deals to hit the advertising columns of newspapers was that old friend the coin meter. "No down payment and as little as 25 cents a day in the meter" shouted many advertisements from coast to coast.

Closer inspection—though not in the ads generally—brought out that the 25 cents was only on the lowest price models. The number of coins to insert daily rose with the cost of the refrigerator involved.

Sears & Roebuck took large space to prominently point out that \$5 on an appliance at less than \$200 and \$10 on appliances selling at more than \$200 would deliver the desired appliance. The store allows the customer 24 months to pay off the balance.

More conservative were such finance companies as Commercial Credit Corp. and General Electric Credit Corp. The Detroit offices of these two institutions both are requiring 10% down with 24 months to pay.

A spokesman at Commercial Credit declared that the company would go to 30 months for a customer with a good credit rating, but that it didn't like to.

Despite the relaxations, consumers have not scrambled for the bait. Announcements of new credit policies have not brought new customers rushing to the stores.

It may be that strikes, elections, and baseball have absorbed their attention so that they have not yet realized that Regulation W has been rescinded and easier credit terms are available.

One source expressed the opinion that the fact that there is no deadline involved, such as there was when Reg. W was first imposed and then when it was later tightened, gives the customer no incentive to hurry out to buy. He can take his own sweet time about it, knowing that restrictions are not likely to be reimposed in the near future at least.

## Restaurant Operators View Latest In Money Saving Devices at Show

CHICAGO — Restaurant and food service operators from all over the country poured into the Navy Pier here during the week of May 6-10 to find out how to make more profit in their business. They were treated to glimpses of hundreds of new and improved pieces of equipment—including many refrigeration and air conditioning products—designed to help them cut costs.

Displayed were a number of new freezers, ice cube makers, air conditioners, display cases, reach-ins, walk-ins, soda fountains, and dispensers. All, according to the exhibitors, attracted considerable interest among the operators.

In one well-attended convention (Concluded on Back Page, Column 5)

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**What about the  
next five years  
in the  
Appliance  
Business?**







**B**USINESS has always had its ups and downs. And it always will.

But, over the years, the American trend is up. We climb to one level of prosperity. Coast awhile. Then, up again.

We think that trend will continue. Here's why we think so.

#### **The opportunity's bigger than ever**

Let's take refrigerators. The best prospects for refrigerators are people who *already own them*.

Today, most people don't wait for refrigerators to wear out. About 60 per cent of those who plan to buy are looking for refrigerators that have more space and more modern design.

This year—this year alone—our industry will *replace* about 2,000,000 refrigerators. Get that! —*REPLACE!!* So you can see that "saturation" is no limiting force in the refrigerator market.

#### **Appliances with a future**

Let's take the dryer. This year the industry will probably sell about 325,000 dryers. Within five years, economists say we'll be selling about 950,000! About three times more. And that's only natural when you think of all the women who have washers and *want* dryers.

The dryer's only a start. The growth outlook is tremendous, too, for the dishwasher, the

Disposall,\* the freezer, the automatic washer, and the electric range. The electric water heater, too.

#### **More people earning more money**

Today, more and more Americans are drawing a weekly pay-check. There are 700,000 more people working than last year.

Average incomes are at an all-time high. Savings are at a postwar peak. The people have more money. We have the products they *want*.

#### **Five years of opportunity**

To any businessman in his right mind, the next five years in the appliance business represent a golden opportunity to all of us.

These aren't just idle words on our part.

Today, we're putting a very large investment into a huge new plant which will make all of General Electric's major appliances: Appliance Park, Louisville, Kentucky.

It will make more General Electric Appliances than ever. And, we intend, better values than ever.

Yes, we believe that the American market will continue to go where it has always gone . . . up.

Our friends in the appliance business can pin their faith on all the things we're *doing* at Appliance Park.

### **Major Appliance Division**

Louisville 2, Kentucky

**GENERAL  ELECTRIC**



# "4-BROS." New, Compact COUNTER-FREEZER

Equipped with Universal Hermetic Unit

CASES SHOWN ARE 6 FT. LONG WITH ABOUT 16 CU. FT. CAP.



Here's the Freezer Cabinet you've always wanted!

A Fast Seller and Money Maker

Look at these features:

- Excellent floor space saver
- Bag racks and wrapping paper at your fingertips
- Self-service sliding glass doors
- Gleaming eye and sales appeal

SIZES: 6'-6 1/2"-8'-10" Ft. 36" W. and 36" H. Comes in Self-Contained or Remote styles.

Designed and Manufactured by Master Craftsmen

**4-BROS. REFRIGERATION MFG. CO.**

Factory & Showroom: 1427-31 S. 8th St., Philadelphia 47, Pa.

Exclusive franchises available in your territory. Write or call.

## Specifications:

Coated coils, 4-inch insulation, vapor proof tank, white and 430 stainless steel finish, includes work counter, bag racks, lights, dividers, price panels.

## N. Y. Permit Fee --

(Concluded from Page 1, Column 2) paid for each refrigeration fixture in a building, that had its own condensing unit.

Industry leaders are advising individuals who write letters of protest to make the following points in their letters to councilmen:

Annual operating permits supposedly are to pay for an annual inspection by the Fire Department. The proposed annual permit is not a reasonable inspection fee, but it is a tax on refrigeration equipment.

The annual permit fee for refrigeration to pay for an "inspection" is completely unjustified. An annual inspection of refrigeration equipment is meaningless, as it cannot reveal any defects in a system. Other cities do not have such inspections.

The annual permit requirement is outmoded. It does not recognize the fact that the vast majority of refrigeration installations today utilize non-toxic and non-flammable refrigerants, and that equipment is completely automatic—such equipment creates virtually no safety hazard. The present refrigeration requirements in New York City were enacted many years ago when refrigeration was a comparatively new and unknown product.

A local committee has been working for 18 months in drafting a modern refrigeration code for New York City to replace the present outmoded code. Any action on annual permits should be deferred until this local committee completes its work.

## Ben-Hur Freezer Plan --

(Concluded from Page 1, Column 2) its West Coast distributor. This is built around selling in the home.

Said Graves: "The plan shows that successful selling is a house-to-house deal, not a salesroom proposition."

The plan will be introduced to Ben-Hur's district sales managers on June 6 at a meeting in Milwaukee. Later in the month, five sectional meetings will be held to present the plan to distributors. Also, distributors and dealers will be able to get details on the plan during the June market.

## JAM HANDY DEVELOPS TRAINING MATERIALS

Presentation and training material on the plan was developed for the company by the Jam Handy organization of Detroit following an on-the-spot study of the West Coast distributor's program by Ben-Hur and Jam Handy representatives.

Elements of the material include: Information to help dealers recruit and train freezer-food salesmen; a chart explaining the plan to financial agencies, food suppliers, and dealers; a film on the same story for showings at meetings; another film describing how to operate and promote the plan; a sound-slide film in color demonstrating how the salesman sells the plan in the home; a 26-page portfolio outlining a sales presentation to prospects; and a 50-page instruction book covering every phase of organizing and conducting a freezer-food plan.

Meanwhile, another big department store came up with a plan of its own. Nationally-known Joske's in San Antonio recently began promoting a program under which customers purchase a freezer and a quantity of food at the store. Joske's gives the customer a food certificate which he takes to one of three locker plants. There the certificate is exchanged for food sold at "wholesale" prices.

The locker plants involved in the plan are the Frozen Food Centers, which earlier had announced their own freezer-food plan. Joske's was promoting Deepfreeze units in connection with its plan but was expected to advertise Frigidaire units later.

## TEXAS FOOD CO. SELLS 20 FREEZERS IN 3 WEEKS

Elsewhere in Texas, Consumers Wholesale Food Co. reported that it had sold 20 freezer-food plan memberships in the first three weeks of operation in Dallas. The company is franchised to operate the Binder plan and is handling Maytag freezers.

The plan offers the customer a freezer and a six-month supply of food. A down payment of 15% is required on the freezer and also a down payment on the food, which is paid for in six months. Financing is through the Merchantile National Bank.

Both the freezer and unused food can be returned within 30 days if not satisfactory to the purchaser, and at no cost to him except for the food consumed. After the down payment on the freezer and food is paid, the first instalment is due in 45 days.

Food is supplied by Park Cities Frozen Food Locker and Huber Frozen Food Processing Plant. However, the company plans to set up its own lockers soon.

## Wilson Refrigeration Names

### Three New Distributors

SMYRNA, Del.—Aubrey A. Davis, general sales manager of Wilson Refrigeration, Inc. has announced the appointment of three new companies as distributors for Wilson products in the south, in the midwest, and in the far west.

These three new distributors are: Reinhardt Brothers Co. of Minneapolis; Thrurow Distributors, Tampa, Fla.; and Leo J. Meyberg, Inc. of San Francisco.

## Head Frigidaire Sales



H. F. LEHMAN

L. A. CLARK

As reported in the May 12 issue of the NEWS, Herman F. Lehman is the new general sales manager of Frigidaire Div., General Motors Corp., succeeding Philip M. Bratten, who has taken an indefinite leave. L. A. Clark continues as assistant general sales manager with new duties.



## ...who dunnit?

Which dealer got the biggest share of refrigeration sales and profits? That's easy. The dealer who knows his products best... their strong points, shortcomings and how to use them. Using this sound principle of business has put him in top place. Using sound principles of refrigeration engineering and construction has placed UNI-FRIDGE at the top, too. We'll wager the dealer on top handles this up-to-date line and has since he first saw it.

Be a dealer who "dunnit"! Get a big share for yourself. Write today for information about the UNI-FRIDGE line and protected dealer territories.

## CORRECT COOLING ... COSTS LESS



## UNI-FRIDGE CORPORATION

712 Fifth Ave. No., Minneapolis 5, Minn.

## Buy Peerless FOR PERFORMANCE



## Flash Coolers Fin Coils Flash Pans

The Peerless Line of quality products is designed and constructed to meet every demand of modern commercial refrigeration. Our Flash Coolers, Fin Coils and Flash Cooler Pans have proved their superiority in performance under widely varying operating conditions. They are built with an eye to appearance, economy of space, and the utmost convenience in installation and servicing. Louvers fabricated from polished aluminum. Made in a wide variety of standardized sizes and styles—all of unchallenged Peerless quality. Write for Bulletin 49C today.

## Peerless of America, Inc.

1501 No. Magnolia Avenue  
Chicago 22, Illinois, U.S.A.

**SUMMERTIME** is quittin' time for old refrigeration units. So right now—before thermometers soar—start making the most of the big and ready-made condensing unit replacement market.

**SELL SERVEL SUPERMETIC—** the Profit Line. It's a sure way to shoot your present income higher, while building a brighter business future. And you can get a Servel hermetic in the exact size you need... quickly and conveniently through your near-by Servel Wholesale Supplier. Over-the-counter "one-stop" service saves time, helps you get back on the job, pleases customers who need constant dependable refrigeration.

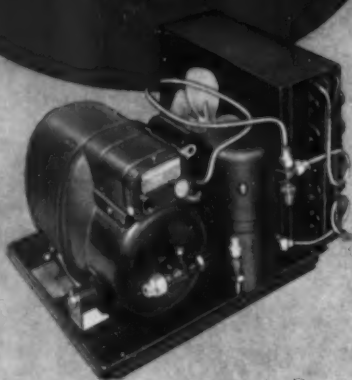
**BEAT THE HEAT —** and your hottest competition—sell Servel SUPERMETIC for every replacement requirement. Servel hermetics are simple to install, easy to check. Interconnections are completely assembled. Ask your Servel Wholesaler for a copy of factory manual containing complete installation and maintenance instructions.

**DON'T WAIT TOO LONG ... MAIL COUPON TODAY!**

**Servel SUPERMETIC**

Models for every commercial refrigeration and air conditioning use... 1/3 to 5 HP.

## COOL PROFITS



## SUPERMETIC MEETS EVERY REFRIGERATION REQUIREMENT

... with air-cooled and water-cooled units in sizes from 1/4 through 3 HP... backed by Servel's low-cost Factory-Extended Warranty Plan.

SERVEL, INC.  
ELECTRIC REFRIGERATION DIVISION  
DEPT. A-53, EVANSVILLE 20, INDIANA

Send full details about Servel Supermetic and name of nearest Wholesale Supplier:

NAME (personal) \_\_\_\_\_  
TITLE \_\_\_\_\_  
COMPANY \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

## FOR SALE

350 ton Air Conditioning Plant has been in service two years and is in excellent condition. Purchase price in 1949—\$49,466.63. Willing to dispose for \$24,733.31. If interested, full particulars can be obtained by calling or writing Perini, Walsh, Mills & Blythe Bros. Construction Companies, Chattahoochee, Florida.





## Mail, Phone Followup System Keeps Good Customers from Getting 'Lost'

DOTHAN, Ala.—A quick and aggressive followup on all "regular customers" who suddenly become inactive has kept volume pegged at a consistently high level for Blumberg & Sons, appliance retailers here.

Herman Blumberg, head of the store, believes that any retailer is making a serious mistake if he "forgets about his old customers" in the race to attract new ones. Therefore, a ledger system has been set up whereby quarterly "searches" may be run, to show up clearly what customers have ceased buying, after years of good relations.

Under the plan, the Blumberg store, largest department store in southern Alabama, utilizes "cumulative ledgers" which, in addition to all of the usual information on customers, shows how often the customer has visited the store, the space of time between visits, and her "shopping trip frequency."

Thus, it is not difficult to isolate those names which indicate that a regular customer has apparently transferred her shopping attention somewhere else.

Two methods are utilized by Blumberg's to rectify the situation. First is an effective direct-mail letter, printed in bright green, and incorporating a clever cartoon. This, addressed to the customer on a green-ribboned typewriter, points out: "Dear Mrs. Blank:

"You have had the experience of suddenly wondering about old friends, I'm sure. If you haven't seen them for awhile, you wonder where they are. Have they moved? Have they been ill? Then the thought comes to you . . . why not get in touch with them, if only to say hello.

"A recent survey of our ledgers shows that you haven't been in to see us for some time. If you have moved, and the reason is purely geographical, we can give you prompt and courteous service by mail. If we have displeased you in any way, won't you jot down the facts on this letter? We are anxious to correct any misunderstandings and improve our service wherever possible.

"I can assure you that any information you submit will be greatly appreciated. As an old friend, won't you drop this note in the enclosed stamped envelope and mail it to-day?"

It is signed by Blumberg. On the right side of the sheet is a cartoon of a sleeping fisherman leaning against a tree, with the headline: "Fishing for Information." Included is a ruled-off box, headed: "Why I haven't used my account recently" with space for the customer's name and address.

customer's name and address.

The store has experienced an excellent response to each such direct-mail contact. Blumberg indicated, averaging well over 50% and often as high as 75%. Particularly gratifying to the store is the fact that many customers who have moved hundreds of miles away are led into continuing relations with Blumberg's via the mail route.

"Apparently most customers who move away were unaware of the fact that we maintain a mail-order department," Blumberg smiled. "It was highly gratifying to see that many

old customers, well pleased with our brands, prices, services, continue to order by mail."

Few of the "regulars" who have stopped buying because of a fancied slight in the store, a misunderstanding, or a lack of courtesy, will take the trouble to write in such facts, and mail the piece back. Blumberg has found. However, it has likewise been learned that the second step in the aggressive followup program—a telephone call—will uncover such facts quickly.

Wherever there is no mail response to the direct-mail piece, Blumberg's follows up by telephone, and thus learns conclusively whether customers have moved away, whether deaths have occurred, or whether the customer is simply "mad at the store." In the latter instance, Blumberg frequently takes the telephone himself, to extend the store's apologies, and every effort is made to win the customer back into the fold.

"We keep in contact with our old customers as closely as possible," he said. "Much investment in time, effort, and goodwill is represented, and it is foolish for the store to lose a customer simply because he has moved away."

## Appliances to the Rescue

## Television Spurs Housewives To Streamline Meals, Laundry, Housekeeping Activities

CHICAGO—The revolution in home life caused by television has reached the kitchen.

A study of trends in cooking techniques and the use of various kitchen tools, made here by Ekco Housewares Institute, reveals that women are speeding up the cooking, changing eating arrangements, and streamlining dishwashing so they can see more of their favorite TV programs.

Mothers are rebelling against being relegated to the kitchen while other members of the family watch the sets in ease, the study indicates.

More and more families are dining in the living room on small folding tables, according to Mary Ann March, home economist of the Ekco Housewares Institute. Among the most popular new items at recent furniture shows have been pieces designed for this purpose, and architects are recognizing the trend by designing

living-dining areas so the TV set will be clearly visible during meals.

Most significant has been the demand for speed-up aids for the housewife, however. Among the most popular of the items shown at the national housewares show here were time-saving pressure cookers, Miss March reports. Besides making tasty meals with just a few minutes' cooking, a popular model doubles as a sterilizer for preparing baby's formula quickly and without watching.

Many families are even using living room fireplaces for indoor barbecues while the TV set is on, as indicated by a strong demand for town and country outdoor kitchen tools.

"The housewife is being made an efficiency expert by the appeal of television," says Miss March. "She is discovering the tools that make cooking, cleaning, and dishwashing easier at a much faster rate than before."

## Only Frigidaire Dealers Can Offer Such A Complete\* Electric Range Line!

\*NO OTHER LINE HAS ALL THESE SELLING ADVANTAGES!



- 1 Ten Great, Different Models—40" Ranges—30" Ranges—21" Ranges
- 2 Two Exclusive "Wonder Oven" Ranges
- 3 The Most Popular Two-Oven Range
- 4 Two Sensational "Thrifty-30" Ranges with Giant Full-Width Ovens
- 5 Three Value-Packed Standard Ranges...with All Basic Frigidaire Features
- 6 Two Compact Apartment-Size Ranges
- 7 Most Beautiful Styling on the Market
- 8 Exclusive Radiantube Surface Units
- 9 All-Porcelain Finish—Inside and Out
- 10 Plus many, many more exclusive Frigidaire Quality Features

### "Wonder Oven" Ranges (2 models)

The only range on the market with the most usable, most flexible oven ever built! Becomes either two ovens or one large oven in just a few seconds. No other electric range made has faster pre-heating. No other range has more selling advantages, more exclusive features, more dollar-for-dollar quality.

### De Luxe, Two-Oven Range

The lowest-priced De Luxe, two-oven range on the market! Here's the range Frigidaire Dealers sell to families whose cooking needs are great—or to folks who want the very finest range money can buy!

### Standard 40" Ranges (3 models)

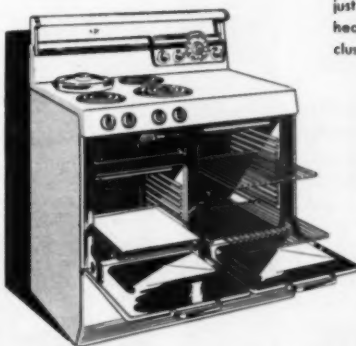
Three standard Frigidaire Electric Ranges—Models RO-10, RO-20 and RO-40, contain all the basic Frigidaire quality features—all the beauty and convenience of higher-priced models. Allow dealers to offer top quality at medium prices.

### "Thrifty-30" Ranges (2 models)

Frigidaire Dealers have made this range one of the best sellers in the industry! Only 30" wide, and sensationally low-priced, it offers economy-minded families more cooking capacity than any other range of its size on the market today!

Only Frigidaire Dealers can offer prospective electric range buyers such a wide area of selection. For, no matter what size family or budget—there's a Frigidaire Electric Range to meet every housewife's needs. What's more, nothing is lacking in features, styles, prices or

sales helps to make Frigidaire the nation's favorite electric range. And Frigidaire Dealers' banner sales records are proving this to be a fact, month after month. Is it any wonder then that Frigidaire Dealers place such a high value on their Frigidaire Franchises?



### Apartment-Size Ranges (2 models)

Compact 21" width. One with 3 Radiantube surface units—one with 4 Radiantube units.



**RUDY**  
mild steel  
**EVAPORATORS**  
fit your needs exactly

Mild steel...simulated or tube-on-sheet types...galvanized...super finished...standard models...prompt service...low cost.

WRITE FOR DETAILS

**RUDY Manufacturing Co.**  
Specialists in  
Manufacturing Evaporators and Condensers  
DOWAGIAC, MICHIGAN

**Frigidaire Electric Ranges**



## AIR CONDITIONING

### How To Obtain Humidity Control In Packaged Air Conditioning Systems

WASHINGTON, D. C.—Why humidity control is needed and how it can be obtained in a packaged air conditioner was outlined by Charles J. Rigby, who heads Defense Products Sales for General Electric Co.'s Air Conditioning Dept., at the Refrigeration and Air Conditioning Engineers' Technical Conference held at Bolling Air Force Base here by Headquarters, U. S. Air Force.

"Most air conditioning systems," Rigby said, "are designed to maintain comfort conditions at peak loads, which seldom exist. In mild, humid weather the external latent load goes up while the sensible load goes down. In this mild weather the compressor runs less of the time and therefore has less capacity for the latent load."

"One solution for this is to use a single coil and capacity control for the compressor. This is excellent for handling the sensible load, but as the capacity is cut down, the refrigerant temperature goes up when actually humidity conditions require that the temperature go down."

"Another possible method is for

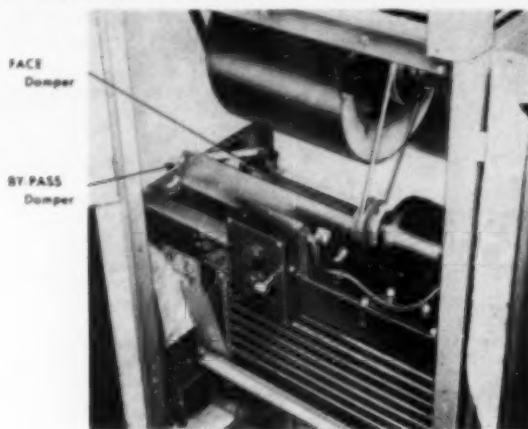
the fan as well as the compressor to be operated on an on-off basis by the thermostat. You can't eliminate moisture from the air when the compressor is off, and on-off operation of the fan often proves objectionable to people.

#### CONTROL BY SPLIT SYSTEM

"Good temperature control can be obtained with another arrangement called the 'split system.' In this," Rigby explained, "the coil is split in two sections, each of which is connected to a separate compressor. This gives capacity control but is only little better than an on-off system for control of humidity."

"Controlling the number of rows of the coil in use gives good capacity modulation with lower sensible loads, but using any just two rows of a six-row coil means less coil surface and the resultant over-all effect on humidity is nil."

"Good results in control of humidity, however, can be obtained by controlling the face area of the coil by means of a dual room thermostat.



WHEN pushed down, "Muggy Weather" control of G-E conditioner closes face damper at rear and opens by-pass damper, sending only part of air through coil and that at a lower speed to increase moisture removal. Front panel has been removed in this view.

Here the problem is to avoid coil freeze-ups, which can be done by leaving 40 to 50% of the face area of the coil in operation during partial loads.

#### USE OF BY-PASS DAMPER

"By-pass damper control, which by-passes some of the return air around the cooling coil, drops both the latent and sensible capacity of the system rapidly. Only a small quantity of air can be by-passed without increasing the total air quantity and overloading the fan, which limits the possible applications of this type of humidity control."

"Control of air volume by means

of modulating dampers to reduce the total air across the coil is likewise limited in applications because it tends to upset the air distribution pattern, which can be a serious problem," Rigby commented.

"A combination of face and by-pass dampers is the best method mentioned thus far. These dampers are interconnected so that as one damper closes the other opens. Thus, as air quantity through the coil is reduced more air is by-passed around the coil. This keeps the total air quantity about the same and does an excellent job of providing dehumidification during mild weather."

#### REHEAT HANDLES WET, DRY BULB TEMPERATURES

"Reheat control, which adds heat to the air downstream from the cooling coil also does an excellent job of controlling both dry bulb and wet bulb temperatures. The compressor runs continuously, however, so operating costs as well as first costs are greater."

"Completely satisfactory results on humidity control during mild, humid weather are obtainable with either reheat or the face and by-pass damper control methods," Rigby declared.

General Electric, he pointed out, incorporates a face and by-pass damper control as standard equip-

ment on its 3, 5, and 7½-ton package conditioners.

#### 'MUGGY WEATHER' CONTROL OPERATES MANUALLY

The two dampers are interconnected and operated manually by a "muggy weather" or moisture control lever which is adjusted by the user to meet his requirements.

"With the by-pass and face dampers in operation, the sensible heat capacity of the unit drops, but the latent capacity increases from approximately 30% to 38% of the total capacity. In addition, the compressor runs longer, so altogether we get an increase of 40% in the latent capacity of the conditioner."

#### Kerr Forms Distributorship, Handles 'Cooler Aire' Units

MEMPHIS—A. T. Kerr Sales Co. has been organized here by A. T. Kerr, formerly in business at Yazoo City, Miss.

The Kerr firm will act as mid-south distributors for "Cooler Aire" room air conditioners manufactured by Artkraft Mfg. Co., located in Lima, Ohio.

*Success Story* [ OVER 20 YEARS ENGINEERING KNOW-HOW AND EXPERIENCE  
OVER 18,000 SUCCESSFUL INSTALLATIONS FROM COAST TO COAST ]

The **HEART** of any Air Conditioning Unit  
is the

**COIL**

ALL COPPER FINS AND TUBES  
TUBES BOTH EXPANDED AND SOLDER BONDED TO FINS  
TIN DIPPED HEADERS  
1/2" OD TUBES IN STAGGERED ROW CONSTRUCTION  
EXPENSIVE SIL-FOS USED FOR SOLDERING  
ALCO EXPANSION VALVE INCLUDED  
DISTRIBUTOR HEAD METERS REFRIGERANT EXACTLY THROUGH ENTIRE COIL  
FLOOR MODELS 600 CFM TO 2,200 CFM  
UTILITY MODELS 1,000 TO 3,000 CFM  
CENTRAL PLANTS 4,000 TO 12,000 CFM

**HASTINGS Air Conditioning Units**  
feature Coils with 100% Copper Fins and Tubes

### HASTINGS AIR CONTROL . . . THE PROVEN ECONOMY LINE THAT BUILDS PROFITABLE YEAR-ROUND VOLUME

- All Direct Expansion Models are equipped with Alco Expansion Valves
- Water units with 6-row coils for use with city water at 60° or less; chilled or well water — from 600 to 12,000 CFM
- Each unit complete with motor, drive and filters
- No other coils have all the HASTINGS qualities which contribute to MAXIMUM EFFICIENCY and long life.

#### EASY SELECTION

Engineering design and capacity ratings permit quick and simple selection of equipment for the job.

COMBINATION cooling and heating units for steam or hot water.

#### GAS UNIT HEATERS

Complete line 75,000 to 200,000 BTU. AGA approved.

#### IMMEDIATE DELIVERY

We are interested in HASTINGS equipment, please send:

Catalogue on ☐ DX, ☐ Water, ☐ Gas Unit Heaters  
Prices on ☐ DX, ☐ Water, ☐ Gas Unit Heaters  
We are a ☐ Dealer, ☐ Distributor, ☐ Sales Agent  
(DESIRABLE TERRITORIES AVAILABLE)

Name   
Address  City  State   
(PLEASE ENCLOSE YOUR LETTERHEAD WITH INQUIRY)

#### INVESTIGATE NOW

We guarantee that you will find the line of HASTINGS COOLING, HEATING AND VENTILATING EQUIPMENT to be exceptional in performance, quality and appearance.

### AIR CONTROL, INC.

SALES DIVISION OF HASTINGS AIR CONDITIONING CO.  
720 BRANDEIS THEATRE BLDG., OMAHA 2, NEBR.

Made for YOUR job!

**RO-FIN**

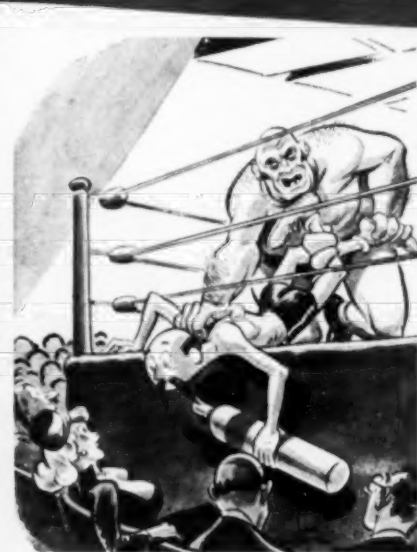


**TUBES**

ROME EXTENDED SURFACE HELICAL FIN TUBING comes in many sizes. Fins are solder bonded for permanent integral contact. For refrigeration condensers, blast air cooling or heating coils, inter-coolers and after-coolers, dry cleaning recovery coils. Write for details.



222 Canal Street • Rome, N.Y.



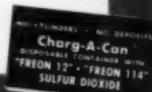
"Keep cool with ESTON!"



#### METHYL CHLORIDE SULFUR DIOXIDE

Distributors of "Eston" brand "Freon" refrigerants:  
"FREON 11"—"FREON 12"  
"FREON 21"—"FREON 22"  
"FREON 113"—"FREON 114"

In Standard Containers



### ESTON CHEMICALS, INC.

3100 E. 10TH ST., Los Angeles 33

SALES OFFICES

IN ALL PRINCIPAL TRADING AREAS



ESTON REFRIGERANTS ARE FOR SALE BY LEADING REFRIGERATION WHOLESALEERS EVERYWHERE



## ASRE Conferences To Cover Automatic Defrost, All-Year 'Package' Home Conditioners

(Concluded from Page 1)

morning and afternoon sessions on Monday and will include talks on general phases of the subject along with descriptions of the systems used by Crosley, International Harvester, Norge, and Westinghouse.

Air conditioning engineers are likewise promised an all-inclusive session on the market and application of all-year residential packaged units at their conference which will include talks on all-gas units, all-electric conditioners, and combination gas-electric units, plus the application of package conditioners to existing forced air heating systems.

General chairman of the program committee is George K. Iwashita; the Domestic conference will be chairmanned by C. D. Harris while P. B. Moore will preside at the air conditioner session.

Two inspection trips have also been scheduled for the meeting: one to Lockheed Aircraft Corp., the other to the new low temperature research laboratories at Georgia Tech. These will be held Tuesday afternoon.

Complete program for the meeting follows:

### SUNDAY, JUNE 1

10:30 a.m.—Executive committee meeting.

11 a.m.—Atlanta convention committee meeting.

1 p.m.—Advance registration. Sections committee.

2 p.m.—Finance committee, Nominating committee, Standards committee on Desiccants.

6 p.m.—Council dinner-meeting.

9 p.m.—President's reception.

### MONDAY, JUNE 2

9 a.m.—Registration.

9:30 a.m.—General assembly. Opening remarks by President, Edward Simons; response by Gordon L. McWilliams, chairman, Georgia section; welcome to Atlanta by J. G. Woodroof, chairman, convention committee.

9:45 a.m.—First Technical Session; President Simons, presiding.

"Generalized Pressure-Volume-Temperature Properties of 'Freon' Compounds," B. J. Eiseman, E. I. du Pont de Nemours & Co., Wilmington, Del.

"Fundamentals of Refrigerant Piping," C. W. Leegard and W. E. Dodson (deceased), General Electric Co., Bloomfield, N. J.

"The Response of Metals to Very Low Temperatures," W. T. Ziegler, Georgia Institute of Technology, Atlanta.

9:45 a.m.—Domestic Refrigeration Engineering Conference, C. D. Harris, International Harvester Co., chairman, presiding:

"Automatic Defrosting for Domestic Refrigerators," C. F. Alsing, Seeger Refrigerator Co., Evansville, Ind.

"Energy Equations for Five Defrost Systems," S. J. Williams, International Harvester Co., Evansville, Ind.

"The Design of Refrigerator Auto-

matic Defrost Controls," R. G. Raney, Ranco Inc., Columbus, Ohio.

"New Silicone Finish Designed for Good Water Run Off," O. J. Spaw, E. I. du Pont de Nemours & Co., Chicago.

Closing remarks, R. W. Ayres, Seeger Refrigerator Co., vice chairman.

Official opening of the Technical Research Exhibit. The exhibit will be open from 12 noon to 1 p.m. and will be closed from 1 p.m. to 2:30 p.m. during the Welcome Luncheon.

1 p.m.—Welcome Luncheon. Speaker: Col. Blake R. Van Leer, president Georgia Institute of Technology, "The Technical Manpower Shortage."

2:30 p.m.—Domestic Refrigerator Engineering Conference continued.

"Description of the Norge Defrost System," J. R. Hornaday, Muskegon Heights, Mich.

"Description of Westinghouse De-

frost Systems," Milton Kalischer, Springfield, Mass.

"Description of Crosley Defrost System," A. J. Pfeiffer, Cincinnati.

"Description of International Harvester Defrost System," H. R. Ball, Evansville, Ind.

2:30 p.m.—Committee meetings.

### TUESDAY, JUNE 3

9 a.m.—Registration.

9:30 a.m.—Second Technical Session, Vice President R. C. Jordan, presiding:

"A Method of Evaluating Refrigerator Oils for Stability," H. M. Elsey, L. C. Flowers, and J. B. Kelley, Westinghouse Electric Corp., East Pittsburgh, Pa., and Springfield, Mass.

"Predicting Behavior of Oils in Refrigeration Systems," C. M. Bosworth, Carrier Corp., Syracuse, N. Y.

"Design and Construction Problems of Tonnage Oxygen Plants," Irving Roberts, Mellon Institute, Pittsburgh.

"A Calorimeter for Finding Heat Leakage of Household Refrigerator Cabinets," G. P. Marcy, Westing-

house Electric Corp., Springfield, Mass.

9:30 a.m.—Packaged Year-Around Air Conditioner Conference, P. B. Moore, York Corp., presiding:

"Review of Present and Future Markets for All Year 'Round Residential Air Conditioning," E. A. Freund, Union Electric Co. of Missouri, St. Louis.

"Application of the All-Gas Year 'Round Residential Air Conditioner," H. C. Pierce, Servel, Inc., Evansville, Ind.

"Application of the All-Electric Year 'Round Residential Air Conditioner," G. K. Marshall, General Electric Co., Bloomfield, N. J.

"Application of the Combination-Gas-and-Electric Year 'Round Residential Air Conditioner," S. F. Shawhan, Carrier Corp., Syracuse, N. Y.

"Application of Packaged-Air-Conditioners to Existing Forced Hot Air Residential Heating Systems," S. W. Reid, York Corp., York, Pa.

Forum discussion period led by Justin Neuhoff, General Electric Co., Bloomington, N. J., conference vice chairman.

2 p.m.—Inspection and sightseeing

trips: (1) Lockheed Aircraft Corp.; (2) new low temperature research laboratories at Georgia Tech.

Golf Tournament, East Lake Country club.

6:30 p.m.—Cocktail party.

7:30 p.m.—Dinner-dance. Spirituals by Bethel Choir.

### WEDNESDAY, JUNE 4

9:30 a.m.—Registration.

10 a.m.—Third Technical Session, Vice President Arthur J. Hess, presiding:

"How Safety Provisions May Prevent Accidents," C. T. Baker, Consulting Engineer, Atlanta.

"Atomic Irradiation As It Might Affect the Refrigeration Industry," L. E. Brownell, University of Michigan, Ann Arbor, Mich.

"Freezing of Poultry," C. F. Goree, Frick Co., Atlanta.

Announcement of proposed amendments to the constitution and by-laws by P. B. Christensen, chairman, Constitution and By-Laws committee.

Announcement of Chicago section trophy award by H. J. Prebensen, director, Chicago section.

1 p.m.—Council luncheon-meeting.

# 8

reasons why  
you'll be dollars  
ahead with...



# Automatic

the complete  
air-conditioning line

1

#### EXCLUSIVE, PROTECTED TERRITORIES AVAILABLE

- An exclusive franchise that means exclusive in your vicinity.
- Certain locations are still available.



COOL-A-MATIC  
Room Cooler 1/2  
and 3/4 ton sizes

2

#### DISTRIBUTOR or DEALER PROGRAM

- A program tailor-made for your operation.
- Discounts for dealer or distributor operation.



FRIGID-A-FIRE  
Combination - heating  
and cooling unit

3

#### LOWEST PRICED COMBINATION AUTOMATIC HEATING AND COOLING UNIT

- The low price of this unit now makes it available for a greater number of home owners.



COOL-A-MATIC  
Package 3-5-7 1/2  
ton sizes

4

#### APPEARANCE

- Compactness of these products coupled with their streamlined cabinets creates a desire for prospective buyers to own one.

5

#### 348% SALES INCREASE IN 1951

- Our testimonial of customer acceptance is the man who owns one.
- Thousands are satisfied users.

6

#### ENGINEERING

- Every Cool-A-Matic and Fridg-A-Fire soundly engineered.
- Our products have the benefit of 75 years of engineering experience incorporated in its manufacture.

7

#### COOPERATIVE ADVERTISING

- 2% of your purchases for promotion of this equipment in your vicinity.
- Other sales helps—direct mail, newspaper mats, display stands, etc.

8

#### EXCLUSIVE FEATURES

- Every product, room cooler, packaged unit or Fridg-A-Fire has exclusive features unmatched by competition.

FAST PROFIT BECAUSE IT'S

COMPETITIVELY PRICED!

Over 100,000 installations  
of our products in the U.S.A.



**Automatic Firing Corp.**

4417 OLNEY AVE., ST. LOUIS 16, MO.

Manufacturers of:

GAS-A-FIRE, OIL-A-FIRE, STOK-A-FIRE, FRIGID-A-FIRE, and COOL-A-MATIC equipment.

Wire or phone call  
NOW! or Mail  
Coupon Today!

Don't miss this opportunity to secure this  
valuable franchise for your territory...

**AUTOMATIC FIRING CORP.**  
4417 OLNEY AVE. • ST. LOUIS 16, MO.

Gentlemen:

Please send me further information on how to be  
dollars ahead with Automatic, the complete air-  
conditioning line.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

**CLEANABLE  
WATER-COOLED  
CONDENSERS**

More Efficient Double-Tube  
Counter-Flow Design

1/2 to  
25-Ton  
Capacity

(HM)

Acceptance in the field is rapidly  
changing to "Demand" for these  
efficient, more economical Clean-  
able water-cooled Condensers.  
Owners and service men prefer  
the "new unit" efficiency that can  
always be maintained by a simple  
cleaning process. Brass headers,  
machined and brazed.

Write for Catalog and Prices  
WHOLESALE IN PRINCIPAL CITIES  
**Halstead & Mitchell**  
BESSEMER BLDG. PITTSBURGH 22, PA.

## INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)  
test counterfeit money they are not shown examples of bad money. Instead, they are taught to recognize what is good. They see the good so clearly, so completely, that the badness of the counterfeit is apparent at a glance."—Wright Line.

### Taxes and the American Home

There are over 100 different taxes on one single egg; 502 taxes on a pair of shoes; 154 taxes on a cake of soap; 201 taxes on a gallon of gasoline; 127 taxes on a roast of beef; 125 taxes on a cotton dress. These are just a few examples.

All together they total nearly 40% of every income dollar.

It is time for Mr. Taxpayer to say, "You have gone far enough in the usurpation of our individual freedom. Now cut it out. We don't like this trend toward more and more socialism, or state paternalism, or dictatorship, or whatever you want to call it. We want our freedoms back and a chance to spend our own money."

Mr. Taxpayer should say to Mr. Elected Representative: "We, the American people, call upon you to do a job that you or your predecessor couldn't or wouldn't do before. And if you can't do it now, we surely will find somebody who can."

Let's see what the taxpayer's share of the tax bite amounts to on some everyday purchases:

On a quart of milk, for example, costing 21 cents, the tax bite is 8 cents.

On a 15 cent loaf of bread, you pay 10 cents for the bread and 5 cents in taxes.

On a 19 cent pack of cigarettes, 11 cents of that is tax.

On a 70 cent pound of meat, there is 20 cents in taxes.

A lowly bar of soap costing 7

cents has a 2 cent tax on it.

Even the baby gets nipped. A 47 cent can of baby powder carries an 18 cent tax.

A \$5 bottle of whiskey actually costs only \$2. The other \$3 is tax.

If one builds a \$10,000 house, \$3,000 of that \$10,000 would be taxes.

A \$2,100 automobile bears \$700 in taxes.

Even a two-bit gallon of gasoline embraces 11 cents in taxes.

When the ladies pay \$1.50 for their nylons, they pay 50 cents in taxes; and those \$9 shoes are only worth \$6, the other \$3 being tax.

And so on and on, ad infinitum and ad nauseum.

Is the fluctuating we're getting worth the fluctuating we get?

2 2

Several subscribers have sent us this:

The Declaration of Independence contains 300 words;

The Ten Commandments contain 297 words;

Lincoln's Gettysburg address contains 266 words;

The Lord's Prayer contains 56 words;

BUT an OPS order on the price of a food package contains 26,911 words!

### New Versions of Abe Lincoln's Gettysburg Address

Lincoln's Gettysburg Address, as a bureaucrat might rewrite it today:

"Eight and seven-tenths decades ago, the pioneer workers in this continental area implemented a new group based on an ideology of free boundaries and initial conditions of equality. We are now actively engaged in an over-all evaluation of conflicting factors. We are met in an area of maximum activity among the conflicting factors . . . to assign permanent positions to the units which have been annihilated in the process of attaining a steady state. This procedure represents standard practice at the administrative level.

"From a more comprehensive viewpoint, we cannot assign, we cannot integrate, we cannot implement this area. The courageous units, in being annihilated, have integrated it to the point where the application of simple arithmetical operations to include our efforts would produce only negligible effects.

"It is preferable for this group to be integrated with the incomplete implementation, that we here resolve at a high ethical level that the deceased shall not have been annihilated without furthering the project—that this group . . . shall implement a new source of unhampered activity, and that political supervision composed of the integrated units, for the integrated units, and by the integrated units, shall not perish from . . . this planet."

RICHARD D. FAY, in the *Harvard Alumni Bulletin*.

A taxpayer's parody of Lincoln's Gettysburg Address, as reported by *Time* magazine:

"One score and 19 years ago, our fathers brought forth upon this nation a new tax, conceived in desperation and dedicated to the proposition that all men are fair game. Now we are engaged in a great mass of calculations, testing whether this taxpayer, or any taxpayer so confused and so impoverished, can long endure.

"We are met on Form 1040. We have come to dedicate a large portion of our income to a final resting place with those men who here spend their lives that they may spend our money. It is altogether anguish and torture that we should do this. But, in a larger sense, we cannot evade, we cannot cheat, we cannot underestimate this tax. The collectors, clever and sly, who compute here, have gone far beyond our poor power to add and subtract.

"Our creditors will little note nor long remember what we pay here, but the Bureau of Internal Revenue can never forget what we report here.

"It is not for us, the taxpayers, to question the tax which the Government has thus far ignobly spent. It is rather for us to be here dedicated to the great task remaining before us—that from these vanishing dollars we take increased devotion to the few remaining—that we here highly resolve that next year will not find us in the higher income bracket, that this taxpayer, underpaid, shall figure out more deductions, and that this tax of the people, by the Congress, for the Government, shall not cause solvency to perish."

### Sensible Thoughts

"There seems to be a trend toward the implication that all forms of advertising are rapidly approaching a science. This is so much humbug, and those who attempt to create advertising with slide-rule methods are headed for trouble.

"Experience is a great teacher. Surveys and research have uncovered interesting and significant findings. But as long as one person tries to sell something to another person, either in person or by advertising in

any conceivable form, advertising can only be an art."—JEROME B. GRAY, partner, *Gray & Rogers*.

"People do forget quickly. If you want to put ideas into people's minds and keep them there, then tell more people—more times; tell them again, and again, and again. Don't ever let them forget."—*Successful Business*.

"Three-tenths of good appearance are due to nature; seven-tenths to dress."—*Chinese proverb*.

"Many managements are made up of financial, legal, and production men who, believe it or not, think that selling is a fungus growth like barnacles on the hull of a ship."—BURTON BIGELOW.

"The wicked are wicked, no doubt, and they go astray and they fall, and they come by their deserts; but who can tell the mischief which the very virtuous do?"—W. M. THACKERAY, in his novel, *The Newcomes*.

## AIR CONDITIONERS

3 to 50 Ton Units complete with evaporative condensers

BAL-AIR MANUFACTURERS  
P. O. BOX 576  
COLUMBIA, S. C.

### WANTED

#### NATIONAL SALES MANAGER

TOP SALARY, applications strictly confidential

PALMER MFG. CORP.  
Mfgs.  
HEATING & COOLING EQUIP.  
PHOENIX, ARIZONA

## WANTED TOP PRODUCTION MANAGER

We have an opening for a top-flight production man. The man we require is probably a production manager or equivalent of a household refrigeration plant.

This is an excellent opportunity with a rapidly expanding company—a leader in a fast-growing industry. Salary will be commensurate with experience and ability. All replies will be held in strictest confidence.

Good working conditions, many employee benefits. Housing available within easy commuting distance in nearby Cedar Rapids and Iowa City.

Write, giving full details, personal history, and experience. Address all replies to:

General Manager

AMANA REFRIGERATION, INC.

AMANA, IOWA



# CHASE The Moisture Monster FOR PROFITS!

Chase the Moisture Monster out of your customers' basements, and you'll be chasing big profits right into your pockets! And we're not kidding when we say big profits—because Air Driers (electric dehumidifiers) are the hottest new appliance line today.

### AIR DRIER SALES ARE SOARING!

The Wall Street Journal reports 1951 Air Drier sales doubled 1949—and '52 sales are better than ever! How can you get a big chunk of the constantly expanding Air Drier business? Tie in with the big Oasis Air Drier sales promotion plan! You'll get a dramatic floor or counter display "Moisture Monster" to identify you with powerful Oasis national advertising . . . newspaper mats . . . direct mail . . . point of sale material . . . plus a *proved sales plan* that closes 9 out of 10 demonstrations for Oasis Air Drier Dealers!

Sounds good? It is! Send the coupon TODAY, and see for yourself how good the Oasis proposition is!



## OASIS Air Drier

ELECTRIC DEHUMIDIFIER

Made by the World's Largest Manufacturer of Electric Drinking Water Coolers

COPYRIGHT 1952 THE EBCO MFG. CO.

Get all the facts about the profit-making OASIS proposition—

MAIL THIS COUPON TODAY!

THE EBCO MANUFACTURING CO.  
404 W. Town Street, Columbus 8, Ohio

Give me the facts on the money-making Oasis proposition.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

ZONE \_\_\_\_\_ STATE \_\_\_\_\_

a new low temperature BRAZING FLUX with 7 improved performance qualities

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## RESTAURANT & BAR EQUIPMENT

### New Products Seen at the Restaurant Show



Model Donna Kime helps draw attention to the Duralucent finish on the new McCall R22 SC commercial refrigerator. The 22-cu. ft. box, which is also available with glass doors or in stainless steel inside and out, was shown by McCall Refrigerator Corp. to restaurant men attending the 33rd National Restaurant Exposition at Chicago's Navy Pier early in May.

R. J. Loudon, president of Loudon Mfg. & Sales, Inc. of Minneapolis, shows Miss Bess Watkins of Boyce Cafe, Oklahoma City, his deluxe walk-in cooler with the new plug-in panel refrigeration unit. The plug-in unit, available in 1/2 to 1-hp. sizes, is seen at the extreme upper right of the picture. It plugs in to any 110-volt receptacle.



Carbonic Dispenser's new patented supercharger carbonator, part of the firm's remote three-flavor and soda "Sodamaster" system, is pointed out by Dan Roberts, sales manager (left).



This small Frigidaire automatic ice cube maker will make up to 5,000 cubes per day and store 2,500 cubes in the tilt-out storage bin. J. L. Kelsey, of the Frigidaire commercial sales department (right), tells Evamoe Habig of Purdue university.

A brand new automatic electric restaurant griddle with double the capacity of older units in little more than 2 sq. ft. of counter space and with twin automatic controls operating either half of the griddle separately was introduced by Hotpoint Inc. (below).



The automatic principle of instantaneous triple action carbonation is incorporated for the first time in the new Liquid Carbonic Corp. carbonator. Al Morris, company sales engineer (right) tells Hubert Hedrick of Hedrick's Cafe, Monmouth, Ill. (left).



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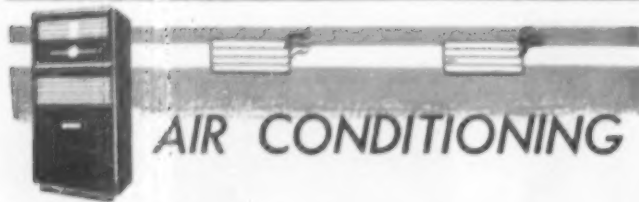


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## Air Conditioning Theater In Canal Zone Presents Problems of High Humidity

WASHINGTON, D. C.—How a system using condenser water for reheat and a spray pond to minimize water consumption successfully air conditions a theater in the Canal Zone where dry-bulb temperature and relative humidity are exceedingly high on a 24-hour basis most of the year was described at the Refrigeration and Air Conditioning Engineers Technical Conference held at Bolling Air Force Base here by Headquarters, United States Air Force.

The paper, which was presented to the group by J. M. Buckaloo, refrigeration engineer with Headquarters, Military Air Transport Service, a major command of the Air Force, points up the problem of air conditioning in humid climates.

"Early in 1950," Buckaloo explained, "a project was approved by USAF to install air conditioning in the base theater at Albrook AFB in the Canal Zone. Work was started immediately and the project completed about September, 1950. Theater activities were continued without interruption during the entire installation which included overhead duct

work, application of a Celotex ceiling, acoustic tile walls, replacement of seats, and general rehabilitation of the theater.

"The ventilation system originally installed in this theater consisted of two 36,000 c.f.m. fans discharging air into the auditorium through concrete ducts under the floor, with outlets under about 75% of the seats. Each outlet is about 8 in. in diameter and covered with a deflecting cap.

"One fan was removed and the other one, with speed reduced to give a capacity of 20,000 c.f.m., was inverted to discharge into an overhead supply duct. The underfloor system is used for the return air. Conditioned air is delivered to the auditorium through overhead ducts and circular diffusers in the ceiling.

"The ventilation requirements were selected as 25 c.f.m. per person because smoking was permitted and because of a high level of body odors in warm humid climates," he said.

"Normal occupancy of the 1,000-seat theater is 600 in the evenings and 300 at matinees and special daytime programs for military personnel.

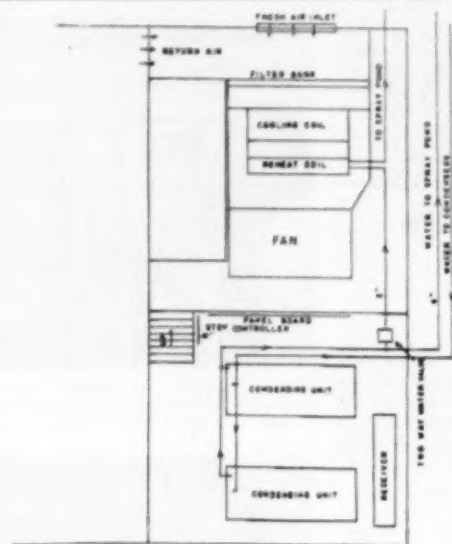


Fig. 1 is schematic diagram of air conditioning system for the base theater at Albrook Air Force Base in the Canal Zone.

"Design conditions were selected after a thorough study of Canal Zone climatic data which had been collected for the past 30 years and are as follows:

"Daytime: 88° d.b., 82° w.b., 77% r.h.

"Night: 80° d.b., 77° w.b., 87% r.h.

"Using these conditions, cooling loads were calculated for day and night occupancy and it was found that the night load was about 40% higher than the day load, due mainly to the greater occupancy and the higher humidity conditions at night," Buckaloo commented.

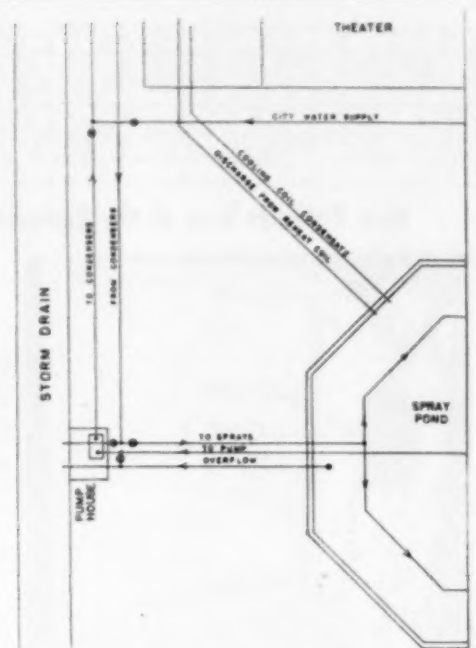


Fig. 2 shows the water piping connections for the system which made use of a spray pond.

"Final selection of design data was for 85° d.b., 81° w.b., and 85% r.h. with inside conditions of 75° d.b. and 55% r.h. The selection of 75°-55% inside conditions was arbitrary and the actual conditions maintained after consulting a cross section of patrons was about 74° d.b. and 58% r.h. which seemed to provide the greatest comfort for the greatest number.

"The final cooling load calculations resulted in:

Internal—  
Latent ..... 150,000 B.t.u./hr.  
Sensible ..... 250,000 B.t.u./hr.  
Heat Ratio ..... .625

Ventilation—  
Latent ..... 800,000 B.t.u./hr.  
Sensible ..... 150,000 B.t.u./hr.  
Total Cooling Load 1,350,000 B.t.u./hr. or 113 tons

"An additional sensible heat load of 200,000 B.t.u./hr. was required to compensate for reheat making a grand total load of 1,550,000 B.t.u./hr. or 130 tons of refrigeration.

"Analysis of conditions on a psychrometric chart indicates that reheat is required in order to obtain sufficient moisture removal without dangerously low coil temperatures, and to assure control of the relative humidity. With a 75° d.b. temperature and 55% relative humidity as a basis for the effective temperature, any considerable change in relative humidity at 75° would result in a corresponding change in the effective temperature so it seemed advisable to control the humidity within a fairly narrow range.

"It would be possible to remove sufficient moisture without reheat at certain load conditions, but it would be impossible to maintain constant temperature and humidity conditions under all loads without reheat unless a very complicated system were installed.

"Several types of reheat were considered," Buckaloo said. "Steam was not available and electric reheat was too expensive. The advantages of hot

(Concluded on next page)

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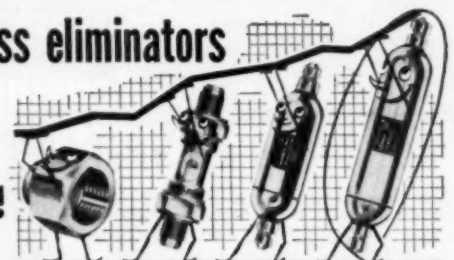
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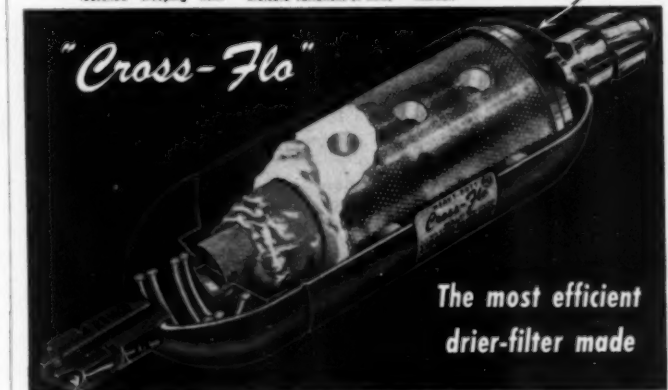
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## Cooling Canal Zone Theater--

(Concluded from preceding page)  
gas and condenser water reheat were compared and it was decided that condenser water was much simpler and more easily controlled.

"One important advantage of using condenser water for reheat is due to the high humidity conditions. The latent heat load is greatest when the evaporation effect on the spray pond water is the least, so the removal of heat from the condenser water reduces the spray pond load when most needed.

"Equipment was selected to meet the foregoing conditions and consisted of two York 60-ton condensing units with capacity reduction, one liquid receiver, four eight-row cooling coils, four two-row water coils for reheat, one liquid line solenoid valve, step controller, thermostats, humidistats, filters, and other necessary accessories.

"Compressor operation is controlled by a potentiometer type thermostat and humidistat mounted in the return air duct and operating the step controller to bring the required capacity steps of the compressors into action.

"The reheat water valve is controlled by single pole-double throw thermostat and humidistat, and is a two-way valve installed in a by-pass line between the condenser discharge water line to spray pond and reheat coils.

### Multiple Step Controller Operates In 7 Steps

"The multiple step controller operates in seven steps. The first step starts the water pump and the second step, following very closely, starts No. 1 compressor and energizes the liquid line solenoid valve and 50% capacity solenoid on the compressor. Both compressors start on no-load and the capacity mechanisms do not operate until the compressors come up to running speed and build up the oil pressure.

"The third and fourth steps bring in the 75% and 100% capacities on No. 1 compressor. The fifth step starts No. 2 compressor and energizes the 50% capacity solenoid and the sixth and seventh steps bring in the 75% and 100% capacities on No. 2 compressor.

"The spray pond was designed for aesthetic as well as utility purposes and is octagonal in shape. It is located in the center of a lawn alongside the theater. The pump is installed in a concrete shelter built along the edge of a deep storm drainage ditch in back of the theater.

"Fig. 1 is a schematic diagram of the system as installed, showing the location of the components of the system and the method of supplying hot water to the reheat coils. When the reheat controls call for reduction in relative humidity the two-way valve opens and some of the condenser discharge water flows through the 2-in. line to the reheat coils.

### 3-Way Valve Abandoned

"When the system was first installed a three-way valve was used and all of the condenser water went through the coils or directly to the pond depending upon the position of the valve, but due to the pressure differential on the valve the operation was not satisfactory. By-pass lines with shut off valves had been installed as a safety measure and it was discovered that with the by-pass to the reheat coils open, sufficient water passed through the coils to supply the required reheat so it was decided to remove the three-way valve and insert the two-way valve as shown.

"Fig. 2 is a schematic diagram of the water connections for the cooling system. With the reheat coil water valve closed it is a normal condenser system with the exception that the condensate from the cooling coils is discharged into the spray pond in order to take advantage of all possible factors which might improve the efficiency of the system.

"With the reheat coil water valve open, part of the condenser water passes through the coil where it gives up a good portion of its heat. This water is then discharged directly into the pond without going through the spray system. The system is so arranged that city water can be used during pond cleaning operations and valved to permit draining when desired. The overflow and drain dump into the storm drain," Buckaloo explained.

"Figs. 3-A and 3-B are the control diagrams. There are two independent

control systems, one for the compressor operation and one for the reheat valve operation. The compressor control system is of the modulating type and consists of a thermostat and humidistat operating a modutrol motor connected to the step controller. The motor runs in either direction and can be stopped in any position by the controls.

"If it is assumed that the motor is stopped and the system is in equilibrium, any change in the temperature or humidity conditions of the air surrounding the controls will cause the motor to run in the direction indicated by the condition.

### Rise In Temperature Causes Motor To Run Forward

"A rise in temperature will cause the motor to run forward bringing more compressor capacity into operation, unless there is a corresponding drop in relative humidity, in which case the motor remains stopped. Conversely a drop in temperature, unless accompanied by a corresponding rise in relative humidity, will cause the motor to reverse and cut out the excess compressor capacity.

"If we consider a case of constant relative humidity and a rise in temperature, the movable contact on the thermostat moves to the left, cutting out some of the resistance in the run circuit and adding a like amount to the reverse circuit so the motor will run forward. As more compressor capacity comes into action and reduces the temperature the contact moves to the right to stop the motor.

"If the temperature continues to drop, the contact moves farther to the right and the motor reverses cutting out some of the compressor capacity. The action of the controls is similar if we consider a constant temperature and a drop or rise in relative humidity.

"In actual practice there is very seldom any appreciable time in which either the temperature or the humidity remains constant so there is some movement of the contacts almost constantly. However, one of the advantages of this type of control is that if the air conditioning load remains constant the controls will pick out the compressor capacity required and any movement will be quite slow.

### Compressors Can't Cut Out Until Temp., Humidity Are Right

"With this arrangement of controls the compressors cannot cut out entirely unless both temperature and humidity conditions are satisfied no matter how low the temperature drops. As the temperature drops to the desired point and the humidity is still too high, the reheat controls begin to act. These are a.p.-d.t. controls and so arranged that they are inactive until the room temperature drops to a predetermined point.

"With the relative humidity above the setting and the temperature down to the cut-in point the thermostat contact moves to the left making contact through the humidistat to open the reheat water valve. As the reheat coil acts to raise the air temperature, the compressor control system tends to bring in more capacity to reduce the temperature. But the humidity is dropping at the same time and the humidistat action opposes the thermostat tending to allow a rise in room temperature without sufficient increase in compressor capacity.

"However, as the room temperature rises it acts upon the reheat thermostat to close the valve allowing the compressor controls to again handle the cooling load without the reheat load. Now the room temperature drops again and the reheat comes on repeating the operation. This intermittent action of the reheat continues until the reheat humidistat is satisfied.

"At this point, the humidistat makes contact on the left side and breaks contact on the right side. This opens the 'open' circuit through the system and completes the 'close' circuit cutting off the reheat regardless of the position of the thermostat contact.

"The thermostat in the reheat system will not permit the valve to open until the temperature drops to very close to the design conditions, while the humidistat will not permit the valve to open at any time the relative humidity is below the design setting.

"A number of improvements and simplifications could be made to this

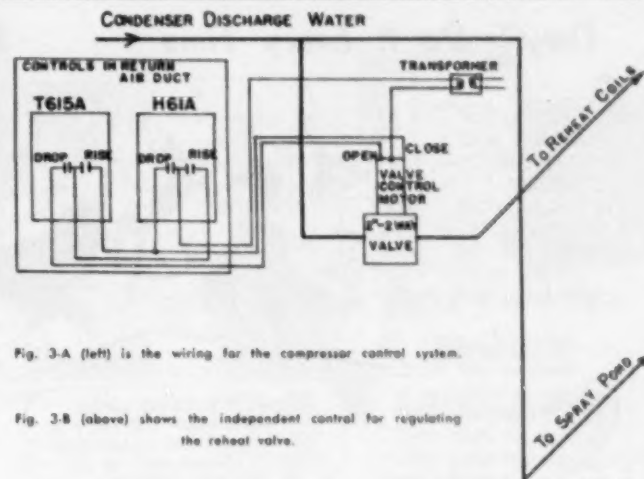
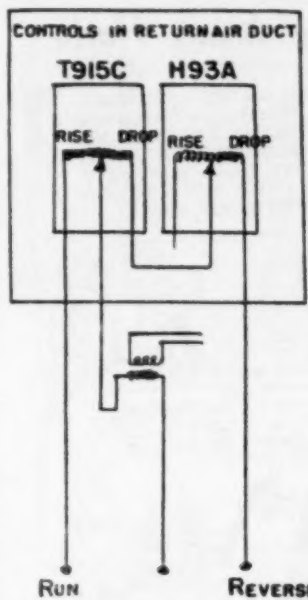


Fig. 3-A (left) is the wiring for the compressor control system.

Fig. 3-B (above) shows the independent control for regulating the reheat valve.

be satisfied to stop the compressors.

"It was assumed that the compressors would have pressure-operated capacity reduction. A single pole-double throw thermostat was to operate a reheat water valve in case the temperature dropped to the cut-out point on the compressor thermostat and the humidity conditions were not satisfied.

"However, the York compressors supplied for the project had solenoid-operated capacity reduction, and the control system for the compressor operation consisted of potentiometer controls and a step controller. The reheat thermostat could still be used but it was felt that since there was a possibility of one thermostat setting being changed without a corres-

ponding change in the other one, it would be better to add a reheat humidistat so the reheat valve could not open when humidity conditions were satisfactory.

"With this system if anyone should lower the setting on the compressor thermostat without a corresponding change to the reheat thermostat, the change in room temperature would take place when humidity conditions were satisfactory, but without the humidistat in the reheat system, the reheat thermostat would control the room temperature and no reduction would take place.

"Condenser water reheat has proven very satisfactory in the Canal Zone in a number of installations," he concludes.



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"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—Charles A. Dana.

## There's a Remedy For Evil Competition

SOME 400 worried refrigerator-appliance dealers gathered in Toronto in April to discuss the proposition of "Business Suicide on Cost Plus 10%."

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They said they were faced with ruin, bankruptcy, and were being forced out of business. The business was going to the dogs anyway.

They invited in some excellent speakers to tell them what to do.

The speakers came, and they told them what to do—in good, plain English.

They told them:

1. Quit trying to sell *price* to the public—which doesn't want a low price for the sake of a low price, but wants a need filled at an honest *cost*.

2. Don't be afraid to lose a sale in which there is no profit, but instead concentrate your efforts on doing an aggressive selling job on products with which you can make an honest profit.

3. Use "one foot in the door" methods of selling to corral your prospects *before* they become shoppers. Fill their needs *before* they become conscious of price.

4. Keep your customers by giving them good service. People today are security conscious (witness government social security measures, and sales of life, health, accident, property, and a host of other types of insurance). They are willing to pay for security in their appliances, too.

Other practical suggestions were made, but these constituted the main points.

When the sessions were over and the final luncheon eaten, what was the tenor of the final perorations by the dealers' leaders?

Simply this:

The dealers were still worried about those unscrupulous fellows who give away the big discounts. They were worried about the government's interference, about taxes and credit regulations and lack of help in maintaining "fair" prices. Somebody ought to do something about it.

No one can deny that all these problems are serious and vital to the average dealer. They make many a strong man shudder. But even the strong man will admit that shuddering will not solve his problems.

The sword that has hacked down many a similar giant trouble in its day has been pointed out and unsheathed. It is said that it will hack down the evil giants of today, too. The strong man has only to pick it up, learn again how to use it, and start hacking away with all his might. He might get a pleasant surprise at what happens!



## BASIC REFRIGERATION CONTROLS

By Service Information Division,  
White-Rodgers Electric Co.

### 8—Correct Installation Of Controls Essential

We recently made a check covering controls returned to our factory to determine the reason why the controls were returned.

It is a surprising thing, but 40% of the controls returned to our factory are not defective. We have been told by other control manufacturers that this same condition exists in their factories also.

We feel sure that the men who install and service controls are always alert to making the best installation possible and that any mistake that is made is definitely unintentional. We feel that it is a responsibility of ours to bring to the attention of the people who are servicing controls some of the things that may create an unsatisfactory installation.

We would like to present a few of the problems that we have encountered in the field. You no doubt know from experience most of the things that we are about to point out. We feel that it is well worthwhile for a short discussion on these various problems if for nothing more than to bring about a better understanding, or to remind us of a few pointers that are always well to follow.

The walls that are shown in Fig. 17 in this photograph represent the walls of a walk-in cooler. On the left of the photograph you will see a heavy-duty line voltage thermostat installed on the inside walls of the cooler. This thermostat is rugged in design and is well protected. However, the switching mechanism is not built to be airtight or vaporproof.

#### GREASY SUBSTANCE PENETRATES SWITCHING MECHANISM

We are all acquainted with the greasy substance that sometimes accumulates on the sides of a refrigerator. This substance is carried in the atmosphere and will penetrate the switching mechanism of a control. The control is designed to be rustproof; the materials used are of the best. However, this atmospheric sludge or grease may accumulate on the contacts of the control mechanism. Further, with humidity changes in the box condensation can collect on the switching mechanism and contacts.

At times owners of refrigerators will wash the inside of the box with a hose or splash water around the inside surface. If this water gets into the control, it certainly does not do the contacts any good.

We know that thousands of these thermostats are used very successfully in walk-in coolers. But as we want to do the job the best way possible we suggest the use of a control designed to do that job rather than to use a room thermostat type of control.

#### EXTENDED ELEMENT CONTROL

On the right hand side of Fig. 17 we show the installation of an extended element type of control. With this type of control we can mount the operating mechanism of the control on the outside wall of the box, and by drilling a small hole in the box we can mount the feeler bulb on the inside.

There are some definite advantages of this type of installation, and it overcomes the disadvantages of using the room thermostat type of control.

The electrical connections can be made on the outside of the box. Adjustments of the control can be made from the outside of the box. The feeler bulb of the control is not affected by moisture and atmospheric sludge can very easily be wiped away from the bulb, which prevents it from acting as an insulator.

In making an installation of this type, you would, of course, fill the hole that you have drilled in the box to prevent air circulation through the opening. Any excess capillary that may remain after the installation is made can be wound in a coil either on the outside or inside of the box.

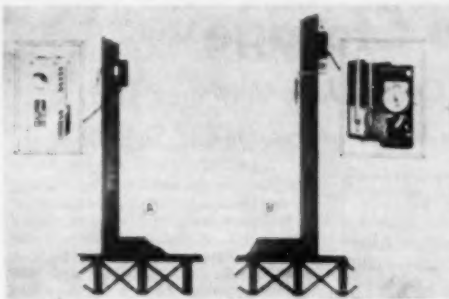


FIG. 17—Remote bulb type of thermostat as shown at right side of picture is recommended for walk-in cooler installation.

The feeler bulb of the control should be mounted in free circulating air. Never mount the bulb directly on the wall of the box. If the feeler bulb is mounted on the wall of the box it will feel the temperature of the wall rather than the air temperature of the box.

In refrigerators of wooden construction, two screw eyes inserted in the side of the box make a good clamp for holding the feeler bulb away from the wall.

(To Be Continued)

### Olson Heads Appliance Dept. of LeValley McLeod

ELMIRA, N. Y.—Ralph B. Olson has been appointed manager of the appliance department of LeValley McLeod, Inc., wholesaler, according to John M. McLeod, vice president. Olson formerly was an appliance salesman for the concern. He succeeds Loren J. Ryder.

### Albertine Marks 33rd Year With Remodeled Quarters

ALBANY, N. Y.—Economy Appliance Co., Inc., 394 Broadway, held an "open house" celebration of its new remodeling and its operator's completion of 33 years in the appliance business.

James Albertine is head of the company.

The remodeling included new neon signs, an enlarged salesroom and a larger service department, a new television lounge, and a new sidewalk and flooring.

### Appliance Outlet in Euclid-Green

CLEVELAND—Featuring a complete line of appliances, the Euclid-Green Furniture Corp. has been opened in the new Euclid-Green Shopping Center. Ben E. Miller and David Isaacs are co-managers of the new firm.



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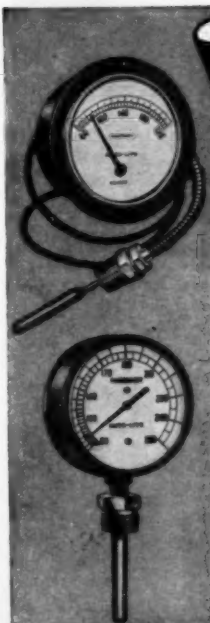
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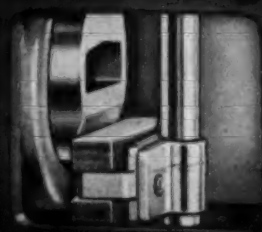
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Model 65H, for Freon 22. Pressure range 165 to 200 psi.



Both units available in 1/2", 3/4" and 1" sizes. Capacity, both units, from 7.2 to 62 gal. per min.

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The exclusive, floating plastic valve shoe and stainless-steel seat provide a combination that is absolutely self-cleaning. Aided by the water pressure, it provides trouble-free, positive shutoff — without water hammer, and unaffected by dirt, lime or sand.

The rugged, forged-brass body construction provides durable, corrosion-resistant service. An extra-strong, two-plate bellows also contributes to longer life.

Use this outstanding valve on original equipment or for replacement service. You can't beat its long life and economy. Choose either of two types, in 3 sizes... for Freon 12 or Freon 22, as indicated at left. Regulates cooling water for compressors up to 42 hp.

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# Military Cold Storage

Calculating Loads Simpler Than for Civilian Jobs, Air Force Told  
By One Manufacturer Who Gives His Views on Equipment Selection

The cold storage plant is of vital importance to the military man as well as the civilian, so when Headquarters, United States Air Force held a technical conference for its refrigeration and air conditioning engineers at Bolling Air Force Base in Washington, D. C., the problem of machinery design and selection for military cold storage plants was given an important place in the program. Text of the talk presented at the conference by Walter L. Pharo of York Corp. follows.

By Walter L. Pharo, Manager, Refrigeration Sales, York Corp.

In designing any cold storage plant consideration must be given to the need for the plant and its location, and in commercial cold storage plants further consideration must be given to additional services such as lockers, for storage, farmers' market stalls, egg breaking facilities, food freezing, break-up rooms for retail outlets and jobbers, car pre-cooling, car icing, pipeline refrigeration for sale to neighboring users, etc.

Since the establishment of need and location of plants is not within the scope of this presentation and since the commercial aspects mentioned are not applicable, this discussion will be confined to the major factors affecting refrigeration for military cold storage plants. These are Rooms, Load, Equipment, and Controls.

Under "Rooms," consideration must be given to the physical arrangement of the plant; floor area required for product and aisle space, and ceiling

height required for product stacking and for meat rails for hanging halves and quarters of meat; temperature and humidity conditions desired in each room; and building construction including type and thickness of insulation, ventilation of attic space above refrigerated rooms, ante rooms, door openings, and structural supports and openings for equipment.

The physical arrangement of military plants has been pretty well established as one-story buildings with a railway on one side and a truck loading platform on the other which is in general accord with modern plant construction. The factors involved, of course, in deciding single story versus multi-story construction are cost of real estate and investment in building versus cost of labor and other operating expenses. This is essentially a matter of economic justification.

The floor area required for product

and aisle space need not be a guess or a rule of thumb figure, particularly in military cold storage plants. The pounds of various foods per man per day for balanced diets is well established. This, coupled with the required storage time and space between stacks of air circulation, permits calculation of cubic bulk of product and containers.

After establishing the stacking height, which may vary from 5 to 6 ft. for manual handling to 15 or 16 ft. for palletized operation with lift trucks, the square feet of floor area required for product can be determined.

In meat coolers, the Bureau of Animal Industry, for interstate commerce, requires 11 ft. from floor to top of track. BAI also requires 2 ft. from the track to the nearest wall or other obstruction. Beef quarters obviously may be hung at about 8 ft. track height. Beef halves normally require 42 in. to 48 in. between rails. Quarters require about 36 in. between rails. Normal storage spacing is 15 in. between hooks on the rail. Closer spacing of rails and hooks is perhaps possible when necessary but is not recommended.

Average weights are about 325 lbs. for beef halves, 155 lbs. for fore quarters, and 170 lbs. for hind quarters. Again, these are "average" figures and should not be used for final design. Facts are available on whether halves or quarters or both

## Load Calculations for Military Cold Storage

Room Size:	35 ft. x 15 1/2 ft. x 11 ft. high	= 543 sq. ft. & 5,973 cu. ft.
Heat Leakage:	Floor = 543 sq. ft. x (50°-40°) x .075	= 407
	Ceiling = 543 sq. ft. x (120°-40°) x .075	= 3,258
	Wall = 35 ft. x 11 ft.	
	= 385 sq. ft. x (95°-40°) x .075	= 1,588
	Wall = 15 1/2 ft. x 11 ft.	
	= 171 sq. ft. x (90°-40°) x .075	= 641
	Wall = 15 1/2 ft. x 11 ft.	
	= 171 sq. ft. x (45°-40°) x .075	= 65
	<b>Total Leakage</b>	<b>= 5,909</b>
Service Factor:	1 Door @ 1,000	= 1,000
Lighting:	534 sq. ft. x 1 x 3.4	= 1,816
	10,000 lbs. x .9 x (50°-40°)	
Product Load:		= 3,750
	24	
	10,000 lbs. x 1.5	
Heat of Evolution:		= 625
	24	
	<b>Total Load</b>	<b>= 12,150 B.t.u./Hr.</b>

will be stored and on the correct weights of each for the particular plant being designed. Use the facts.

The foregoing will determine square feet of floor area and ceiling height required for product. Aisle space can be determined by actually sketching product area and aisles on the layout drawing, giving due consideration to column and door locations. Finally, additional space must be allowed on floor, walls or ceiling for refrigeration equipment. Thus, room length, width, and height can be determined.

Temperature and humidity for each room can be determined from published tables of optimum conditions for each product. In establishing room conditions consideration must be given to storage time and to subsequent defrosting problems.

Building construction, as to type and thickness of insulation and attic ventilation, affects heat leakage. A good investment in the beginning will pay dividends for years. Ante rooms, or lack of them, and door openings, including quantity, location, and frequency of use, all contribute to air infiltration into the rooms, which is reflected in the refrigeration load, frost formation, and the frequency and type of defrosting required.

All of these factors, including supports for equipment, water and drain lines, and refrigerant piping through walls must be considered under building construction.

Under "Load," normally referred to as the heat load or the refrigeration load, consideration must be given

to outside ambient conditions; room design conditions; roof or attic construction; type and thickness of insulation; door openings; type and quantity of product loaded into the room per 24 hours; temperature of product entering the room; allowable pull-down time to reach room conditions; personnel occupancy; and miscellaneous heat loads, such as lights, electric motors, etc.

As an example, assume a 40° F. fresh fruit and vegetable room 35 ft. long by 15 ft. 6 in. wide by 11 ft. high with 4 in. corkboard insulation all around and with a low ventilated attic above, one door in an end wall opening into a 45° F. vestibule, the other end adjacent to an inside non-refrigerated room, one side an outside wall adjacent to a covered loading platform, and the other side adjacent to a 35° F. refrigerated room.

The outside ambient design conditions are 95° F. dry bulb and 78° F. wet bulb, and 10,000 lbs. of 50° F. fruit and vegetables are to be loaded into the room per 24 hours and are to be pulled down to 40° F. in 24 hours.

Note that personnel occupancy has not been given. Since this is a fresh fruit and vegetable room occupied only for short periods during entrance and exit, the personnel load can be neglected and accounted for under door service load. If this were a 45° F. meat cutting room, for instance, with say four people occupying it regularly throughout the day, it would be necessary to figure four

(Continued on next page)



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## Military Cold Storage--

(Continued from preceding page)  
people at some 780 B.T.U./hr. or an additional 3,120 B.T.U./hr. load.

Note also that the electric load is not given. In this particular room this can only amount to about 1 watt/sq. ft. lighting, plus, of course, any fan motor horsepower added later if air units are used. Again, if this were a meat cutting room, there would be possibly 5 to 10 hp. in saws, grinders, etc., and exact information on the size and duration of operation of such equipment would be necessary since this could amount to quite a heavy load.

### Heat of Evolution To Be Contended With

In the storing of fresh fruit and vegetables there is a live load, the heat of evolution, involved whereas if this were a frozen food storage room this additional load would not be present. With vegetables entering at 50° F. this load will of course be small whereas it could be quite large with fresh fruit and vegetables entering at field heat conditions. Nevertheless this load should be included as 1.5 B.T.U./lb./24 hours, taken from the ASRE Data Book.

The specific heat of .90 for average fruit and vegetables, and the heat transfer value of .075 B.T.U./hr./sq. ft./degree temperature difference for 4-in. corkboard, and for that matter other thicknesses and types are found in the ASRE Data Book.

From the same source, and with the judgment factor, 1,000 B.T.U./hr. is selected as the door service load. It is realized this is somewhat heavier than called for in the book for a 40° F. room opening into a 45° F. vestibule, however, the judgment factor took into account that this room gets heavy usage, the vestibule opens to the outside loading platform only a short distance from the vegetable room door, and that a personnel load was not otherwise figured.

In considering the attic temperature, knowing outside ambient design conditions are 95° F. dry bulb and 78° F. wet bulb, and realizing that ventilation is wholly dependent upon louvers in the ends of the building, 120° F. is selected for calculating the ceiling heat load. Ground temperature is considered to be 50° F. in calculating the floor load. The one outside wall is shaded under the platform canopy so 95° F. is used, whereas had this been exposed to the sun, a figure of about 100° F. would be used. One end wall is adjacent to a non-refrigerated inside room which is estimated to be about 5° F. cooler than outside ambient, so 90° F. is used in calculating this wall load.

The other wall is adjacent to a 35° F. room. This is neglected entirely and no advantage is taken of the theoretical refrigerating effect of this wall.

With these assumptions, the accompanying load calculations are developed.

### Should Safety Factor Be Applied?

After making such load calculations the first question is usually whether or not a safety factor should be applied, and at this point it is easy to start getting into trouble. Too often safety factors have been piled upon safety factors with resulting refrigeration equipment far too large for the plant load, which is just as wrong as having equipment too small for the plant load.

In reviewing the calculations it will be noted that the heat transfer factor for 4-in. corkboard was used and no advantage was taken of the insulating value of additional building material. Maximum outside ambient of 95° F. for the entire 24 hours, full door service for 24 hours, and full lighting load for 24 hours were used, whereas these factors decrease during the night. If the quantity and temperature of product received is correct, all the safety factors needed have already been included, and the load as calculated is final.

Note the statement: "If the quantity and temperature of product received is correct." Herein lies the greatest chance for error, and the quantity and temperature must be double checked to be sure they are right—not high enough—but right. Often the quantity and temperature used are too high.

Note, for example, if 20,000 lbs. of product per 24 hours entering at 70° F. had arbitrarily been selected

instead of the actual 10,000 lbs. at 50° F., the calculated product load would have jumped from 3,750 B.T.U./hr. to 22,500 B.T.U./hr., an increase of 18,750 B.T.U./hr., which is far greater than the total room load previously calculated.

In addition, in the case of this fresh fruit and vegetable room, the heat of evolution would have increased sharply. If then, the actual product loading were only 10,000 lbs./24 hrs. at 50° F., this error could have resulted in refrigeration equipment more than twice the size required.

The product loading can and must be accurately determined for proper load calculations and resulting equipment selection.

Refrigeration equipment is usually referred to as high side and low side, the high side being the engine room equipment consisting of compressors, condensers, and receivers, and the low side being the evaporators in the rooms. The high side equipment normally handles ammonia or "Freon." Refrigerant circulated to the low side may be direct in the form of ammonia or "Freon" or may be indirect in the form of brine. All are good refrigerants—none can be considered more old fashioned or more modern than the other. There is a time and place for using each of them.

Ammonia is less expensive than "Freon," is easily held in a reasonably tight system, and leaks can be detected and repaired with little loss of refrigerant. Heavy concentration in a room can result in product damage, however, such losses are rare since the odor of ammonia can be quickly detected.

"Freon" is odorless, nontoxic, and will not damage product through leaks. On the other hand it does require a tight system to prevent leaks, which if they do occur can result in considerable loss of refrigerant since "Freon" is odorless and is not easily detected.

### Factors To Consider When Selecting Refrigerant

No attempt is being made to promote one refrigerant over the other. In selecting either one of them consideration should be given to the availability of refrigerant and to the availability of qualified service personnel at the particular location in question. Practically all public cold storage plants, dairy and ice cream plants, ice plants, and the like use ammonia and there are usually one or more such plants with qualified service personnel in every city and town throughout the country.

Likewise, the increased use of "Freon" for air conditioning and commercial refrigeration has made qualified "Freon" servicemen available. After taking into consideration all of the foregoing, the choice of ammonia or Freon is therefore largely a matter of balancing the first cost and operating cost of equipment selected for each refrigerant for the particular plant in question.

Brine provides closer control of room conditions and usually results in better plant balance and smoother plant operation. It has the disadvantages of higher first cost and slightly higher operating cost because of the additional temperature split required between the brine and the refrigerant handled by the high side. It is used extensively in large plants, but, however, is more difficult to justify economically in smaller plants.

### Selecting Condensing Equipment

Condensing equipment can be either shell and tube or evaporative condensers. If a source of cold water and a means of disposing of it are available, shell and tube condensers will show considerably lower first cost, lower operating cost, practically trouble-free operation, and quite possibly longer life than evaporative condensers.

If such a source of cold water is not available, cooling towers and shell and tube equipment can be used; however in this case the first cost, operating cost and other factors must be compared with evaporative condensers to arrive at a decision.

Refrigerant receivers should obviously be fabricated in accordance with applicable codes for unfired pressure vessels and should be sized for not less than 125% of the plant refrigerant charge to allow for pump down.

Compressors should be furnished in accordance with ACRMA standards. Fortunately, most refrigerant compressors manufactured today are properly rated or at least are rated within reasonable limits. ASRE Standard No. 23-R, approved Dec. 6, 1949, provides a basis for proper rating at certain specified conditions, referred to as Group Numbers.

Military specifications, in addition to specifying the B.T.U. or tonnage requirement at design conditions, can require certified ratings in accordance with the nearest Group Number, selected from Table I, paragraph 4.21 of ASRE Standard No. 23-R, and be sure of having a common basis upon which to compare one compressor with another.

The same basis for specifications can be used in comparing condensing equipment.

Evaporators are of many types. Those most applicable to military cold storage rooms are pipe coils either prime surface or finned and either steel, usually hot dipped galvanized, or non-ferrous metals; and air units, either floor or ceiling type, with wide variations in arrangement, type and quantity of evaporating surface, corresponding air quantities, and materials and methods used in fabrication.

Herein lies the greatest single source of trouble in military cold storage plants. Unfortunately, there is a wide variation in published evaporator ratings, some running as much as 200% to 300% over other published ratings for similar equipment. The ACRMA and REMA are at present jointly developing a new standard for rating and testing forced circulation air coolers. This standard, when finally adopted, will

## Commercial Refrigeration

go a long way toward solving this evaporator rating problem.

In many cases those writing specifications increase their calculated loads 200% or 300% to be sure the evaporators furnished will be large enough to carry the actual load. If properly rated evaporators are then furnished, they are two or three times too big for the actual load. If the evaporators are overrated 200% or 300% they are theoretically the right size for the room load, however, are only one-third or one-half large enough to balance the high side equipment, which is usually properly rated in accordance with specifications.

The obvious operating result then is a drop in refrigerant temperature, increased split between refrigerant temperature in the evaporator and air temperature in the room, low humidity conditions, excessive dehydration of product, and all the other troubles which go hand in hand with unbalanced plant operation.

This is a most controversial matter and one for which anyone who expresses an opinion can easily be criticized. The problem can and will be solved, however, when all those writing the specifications and all those buying the equipment and all those supplying the equipment jointly want to solve the problem. There is every reason for that much confidence in the know-how and integrity

of all those involved, and that's not flag waving—that's just plain common sense.

### Talk of Military Standardization

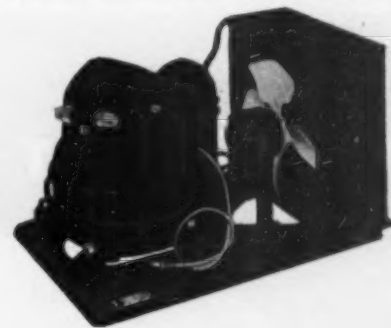
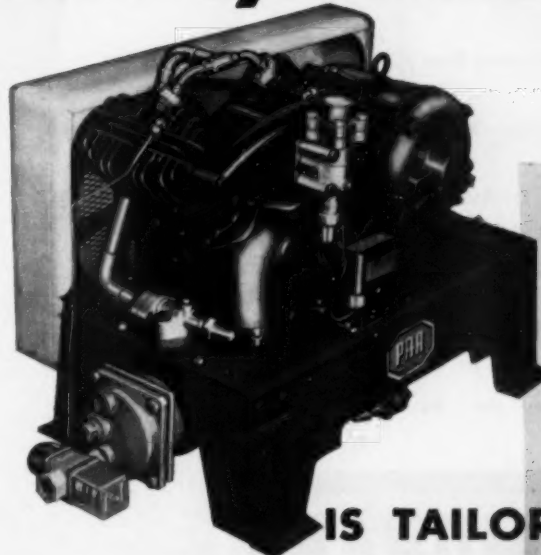
All of this is brought about, by the way, through the difficulty in describing air units in specifications, which are open to all bidders or even a majority of them, our government's necessity for taking the low bid, the wide variation in air unit ratings, and through the even more difficult task of determining whether or not the air units furnished meet the specifications as written.

This in turn has prompted talk of military standardization of equipment such as air units, which manufacturers are not going to accept without assurance they will get their money back for the production costs involved, among other things, and which assurance the military services cannot give them.

Pipe coils, either prime surface or finned, fall in a somewhat different category. The proper "K" factor can be established without too much difficulty, specifications are easy to write, most refrigeration equipment manufacturers can and do make them, and could no doubt fabricate them to exact specifications with little additional expense. They can be steel, hot dipped galvanized, for

(Concluded on next page)

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MOTOR PAPER PACKAGING MACHINES



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GLASS FORMING MACHINES



## Military Cold Storage--

(Concluded from preceding page)  
either "Freon" or ammonia—a fact which is often overlooked.

The use of such coils, in addition to conserving critical copper and aluminum, permits all welded construction—good assurance against leaks. They eliminate fans, motors, electric wiring, and moving parts in general—resulting in longer life, less replacement parts, and lower maintenance cost. They provide gravity air circulation which is desirable in the type of rooms being discussed. And it is a simple matter to determine whether or not the supplier furnishes the amount and type of coil specified—complete assurance of adequate evaporator and proper plant balance.

On the negative side, pipe coils are likely to run higher in first cost, primarily because of increased field erection labor compared with erection of air units. The cost of ductwork, electric wiring, etc., when charged against the air units could of course show a higher first cost for complete air unit installations. Delivery could be slower, because pipe coils are "tailor made" to fit the job, an asset in getting the exact size evaporator required but essentially impossible to fabricate in advance of orders. Sections can be fabricated in advance, however such sections in large quantities could result in unbalanced inventories in manufacturers' plants.

### Pipe Coils May Not Fit

#### In with Distribution Methods

In addition, pipe coils do not fit in well with most manufacturers' distribution methods which have

been largely built around packaged air unit outlets. This is not intended to be derogatory. Without this distribution pattern the military services and all other users of air conditioning and commercial refrigeration equipment could not enjoy the low prices, fast delivery, and good service available to them today.

On this basis alone, specifications calling for air units are not considered discriminatory, whereas specifications calling for pipe coils could and possibly would be considered discriminatory.

In addition to these pro's and con's there are other points which are even more controversial and which could be argued for great length. There are those for instance who might contend that air motion such as that produced by air units is necessary, and this is true for fast freezing of products, rapid pull down of food stuff from field heat conditions, removal of heavy moisture loads, and similar conditions. These conditions do not exist, however, in military cold storage plants where pre-cooled or frozen products are received and stored for periods varying from a few days to a year.

### Pipe Coils May Operate for Months Without Defrosting

There are also those who might contend that defrosting of pipe coils is more difficult and who at the same time possibly overlook the fact that, due to the greater surface, pipe coils require much less frequent defrosting. Pipe coils in a frozen food storage, properly locked against ex-

cessive infiltration, may easily operate for months without defrosting. Hot gas or water defrosting or a combination of both may be used if the coils are properly installed. In rooms above frost conditions the pipe coils can be drained as readily as air units.

This is not an attempt to sell pipe coils over air units or to contend that properly installed air units in military cold storage plants are unsatisfactory. Since air units in general have been overused, however, and since the evaporator in cold storage plants is the trouble spot, and since pipe coils offer at least one solution to the problem, it is worth considering an evaporator which will do everything an evaporator should do and which will likely take up a lot less space in the refrigerated room and be a lot less trouble doing it. Properly sized air units, at reduced air quantities, and with distribution ductwork providing air motion similar to that naturally provided by pipe coils is quite satisfactory.

After all, an air unit is essentially a pipe coil with a fan blowing air over it. If the extra air is needed, use the fan. If it is not needed, it is economically unsound to add the fan and then spend money on a distribution system to get rid of the air motion and spend further money on the refrigeration system to take out the fan motor input (about 3,000 B.t.u.-hp.), which can amount to a big percentage of the basic refrigeration load.

Refrigerant may be circulated through the evaporators by expansion valves, liquid recirculation, or gravity feed. Liquid recirculation and gravity feed flood the evaporators and take advantage of all of the

surface for heat transfer, whereas expansion valves require a certain amount of drier surface. Evaporators using expansion valves must, therefore, have some 25% more surface for direct expansion than would be required with flooded operation. This obviously means then that flooded operation requires less expensive evaporators.

On the other hand, low pressure receivers, liquid pumps, floats, and the like are required for flooded operation, the cost of which must be added to the over-all plant. Here again an economic balance is required. As a rule of thumb, plants over about 20 tons refrigeration capacity will show a lower cost with flooded operation. Below that, direct expansion will usually show a lower cost.

This breakeven point will vary greatly between plants, however, therefore a study of both methods should be made.

Temperature control is normally accomplished with room thermostat and solenoid valve in the supply to the evaporator. On multi-room installations with common high side, particularly when inadequate evaporator is furnished, the room temperature will continue to pull down, even though the supply line is closed, because the high side continues to pump out the evaporator.

This reduction in refrigerant temperature not only often prevents defrosting but may aggravate the frost condition. A solenoid in both supply and outlet from the evaporator, with low pressure relief valve around the outlet valve, both operated from the same room thermostat, will provide closer control and cycle defrosting.

Control of compressor operation can be accomplished by the room thermostats connected in parallel or by a suction pressure switch or by a combination of both. The suction pressure control idea is applicable to small installations, usually with only one evaporator connected to the high side, and has been overdone in attempting to control large installations.

Room thermostats in parallel for starting and stopping the compressor with suction pressure step controller for compressor capacity control provide a better system.

### Control of Condenser Operation

Control of condenser operation can be accomplished by starting and stopping the condenser water pump on shell and tube equipment or fan motor on evaporative condensers through the paralleled room thermostats, with relays in the fan or pump motor lines to start the compressor. Condenser operation is thus assured when the compression equipment starts.

There are times when it is desirable to stop the water circulating pumps on evaporative condensers to prevent freeze up or to raise the condensing pressure for proper plant operation. By controlling the circulating water pump from the evaporative condenser fan motor circuit, the pump can easily be cut out either manually or automatically as required.

Adequate humidity in a room can best be accomplished by using the proper size evaporator. A small split between refrigerant and air gives a high humidity. A large split gives low humidity. During cold outside conditions or light plant loading, room humidity will tend to increase. It can be lowered by a greater temperature split during operation periods or by reheat during off periods thereby forcing operation of the refrigeration equipment.

Low humidities can be increased by operating at a smaller split between refrigerant and air or by mist nozzles in the room controlled by a room humidistat. In a properly designed cold storage plant, except under extreme circumstances of weather or plant loading, the necessity for reheat or mist nozzles should be rare. Too often they are used as crutches to support a poorly designed plant.

### Brine Circulating System

Obviously a brine circulating system, using the flywheel effect of the brine storage tank and using bypasses for recirculating part of the brine, provides excellent temperature and humidity control and balanced plant operation.

Properly sized suction pressure regulators, installed in the suction line from each room in a direct expansion system, also permit adjustment of desired split between refrigerant and air if the evaporators are

large enough to operate properly at the smaller split conditions. Suction pressure regulators are good control instruments and should be used. They have gotten bad reputations because of two basic reasons.

### Selected Too Large

First, they have been selected too large for the already too heavy loads specified. They have therefore been many times too large to control the small amount of gas passing through them. It is far better to have a suction pressure regulator too small than too large.

Second, the evaporators on which they have been applied have often been too small to pick up the heat load at the designed split.

If the suction pressure regulator did its job of holding the desired pressure, room conditions could not be maintained. When the regulator was removed, the split increased and the evaporator picked up the heat. Humidity was also lowered, dehydration set in, and all of the other troubles started, but the thermometer indicated the room temperature was right. The suction pressure regulator therefore took the blame, and the evaporator, the real culprit, went merrily on its way.

The most desirable of all control instruments in any cold storage plant is properly calculated loads with corresponding properly sized equipment, properly balanced between evaporators, compressors, and condensers.

Proper refrigerant temperature can be determined by subtracting from the room temperature the proper split between refrigerant and air for the particular product being stored. Such splits are published in reputable product tables. The proper room load, the room temperature, and the refrigerant temperature then become the basis for the evaporator selection.

In a single walk-in box with one evaporator on one compressor the calculated load is normally multiplied by 24/16 before selecting the evaporator to provide 16 hours operation per 24-hour day to allow for defrosting. In large multi-room cold storage plants where product loading, door service, lighting, etc. cannot be imposed on all rooms simultaneously, the 24/16 factor is not needed and should not be applied.

### Sum of Evaporator Capacities Is Basis for High Side Selection

After selecting the proper evaporator for each room, the sum of all evaporator capacities (not calculated loads but evaporator capacities) becomes the basis for high side selection. This is to insure plant balance between high side and low side. Compressors operating at low suction pressures require considerably more horsepower per ton than do compressors operating at high suction pressures.

Widely different suction pressures, such as that required for 35° F. rooms and that required for -5° F. or -10° F. frozen food rooms, should not be combined on a single compression system since it would have to operate at the lowest pressure to satisfy all rooms with the resultant high horsepower per ton operating cost.

On the other hand, it is not economically sound first-cost-wise to select separate compression systems for evaporator temperatures varying only a few degrees. These may be grouped together and the compression system selected for the lowest suction pressure of the lot, after deducting the calculated line losses of course between evaporators and engine room. The compression equipment must operate at a slightly lower suction pressure than the evaporators to overcome this suction line pressure drop, all of which can be calculated when the mains are sized.

One other important factor in this connection, and one which is often overlooked, is that all evaporator capacities must be based upon this lowest suction pressure and corresponding temperature—not upon the capacities originally determined at the desired split—or suction pressure regulators must be installed to maintain the desired split. Obviously the latter is preferred because proper splits, desired humidity conditions, and proper plant balance is thus maintained.

A study of the calculated load for maximum and minimum conditions will dictate the number of compressors per compression system and the number of steps of capacity reduction required on each. It will be found that fewer steps of capacity reduction are required if room loads are calculated correctly and low side and high side are actually balanced.

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## New Products at the Restaurant Show



### Operators Saw New Freezers, Display Cases, Air Purifier

# RESTAURANT & BAR HOLLYWOOD



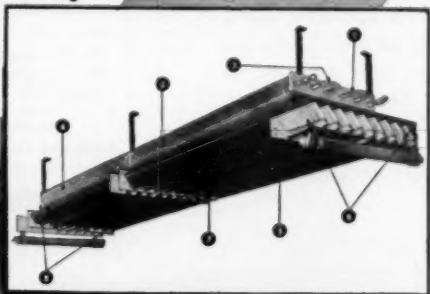
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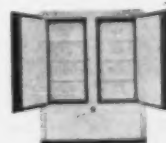
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A Wilson franchise gives you the most complete line on the market—farm and home freezers, milk coolers, refrigerators, commercial units, beverage coolers—in many sizes and styles. A few valuable exclusive distributor territories are still open. Write, wire or phone today for full details.

### OTHER WILSON HOME FREEZERS



# WILSON

HOME FREEZERS • FARM MILK COOLERS • COMMERCIAL REFRIGERATION

Radio, TV Coverage of Political Activities Will Be Basis For Big Westinghouse 'Get on the Bandwagon' Sales Drive

MANSFIELD, Ohio—Backed by the three million dollar Westinghouse political television and radio programs from July 6 to election night returns on Nov. 11, the appliance specialties department of the company's Electric Appliance Div. will launch an intensive sales drive in July.

The program, called "Get on the Bandwagon," is "the biggest industry promotion ever staged for electric housewares, bed coverings, fans, and vacuum cleaners," said R. M. Oliver, manager of the appliance specialties department.

Details are now being told to distributor executives by two teams,

one headed by R. Z. Sorenson, manager of electric housewares, and the other by C. E. Anderson, merchandise manager of the fan department. Distributor salesmen meetings are scheduled to begin May 12 and will be completed by May 31. Plans call for distributors to hold similar meetings for their dealers.

Distributor salesmen meetings, as planned, will open with a breakfast, and food mixers with the juicer accessory in place will be used by the salesmen to make their own orange juice. Depending upon facilities available, a bank of toasters or a toaster at each table will be set up so that the men will toast their own bread.

"This is being done," Oliver explained, "to make certain that these salesmen get a good selling story through using these two appliances. Other appliances will be set up in the meeting room and where possible they will be operating, and that includes fans and vacuum cleaners as well as bed coverings."

The meeting room will be set up as a political convention hall with banners and the menu printed in political jargon.

The meeting will cover the over-all promotion for the "Get on the Bandwagon" sales drive and how dealers can best utilize the Westinghouse-sponsored political convention radio

and television coverage and follow-through with the "Lincoln-Douglas type" debates that will precede election day.

Other Westinghouse advertising programs that will sell the Westinghouse name to consumers during July include a full schedule of national magazine and local newspaper advertising and either Westinghouse "Studio One" or the "Summer Theater" television dramatic show.

Westinghouse sponsors the Columbia Broadcasting System coverage of the Republican National Convention which starts July 6 and the Democratic National Convention, July 21. Both conventions will be televised over 40 CBS television stations and broadcast over 190 CBS radio stations.

And beginning Aug. 11, Westinghouse will sponsor a 13-week "Get Out the Vote" debates between leaders of both political parties.

Whirlpool Drops Price \$20 On Automatic Washers

ST. JOSEPH, Mich.—A \$20 retail price reduction on Whirlpool automatic washers was announced here today by John M. Crouse, sales manager for Whirlpool Corp.

The reduction will bring model 501551, automatic washer without

CORRECTION

A headline over a news story published in the April 28 issue erroneously stated that Whirlpool Corp. had reduced prices on all its automatic washers at that time.

The story reported correctly that the price reductions announced by Whirlpool Corp. at that time applied only to automatic gas and electric clothes driers.

suds-miser, to \$299.95, and model 501561, with suds-miser, to \$319.95 in zone 1.

This compares with previous retail prices of \$319.95 and \$339.95 respectively.

The price cut was made possible, according to Crouse, by improvements in production methods and by economies resulting from Whirlpool's recent merger with Clyde Porcelain Steel Corp. of Clyde, Ohio.

On April 21 the company effected price reductions ranging from \$19 to \$24 each on Whirlpool automatic gas and electric driers.

Blotters Plug G-E Ranges, Water Heaters, Refrigerators

LOUISVILLE, Ky.—Colorful, 4-color blotters plugging the benefits of General Electric ranges, water heaters, and refrigerators have been made available to dealers by the company.

Miniature reproductions of the billboard posters currently being used by G-E, the blotters are designed for use in direct mailing campaigns or as insertions to be included with monthly statements.

For economic imprinting, the blotters come in sheets of three with clearly indicated cut-apart lines. Ample blank space is left at the bottom of each blotter for the dealer's name.

Dealers can obtain the 3-blotter strips in any quantity from their local General Electric distributor.

What We Can Do For America!

Timely New Book Presents Original Suggestions

Just what IS the American Way, anyhow? We may know what we're against, but do we know what we are for? Which are the causes of our fears and uneasiness? What can we do about the "fix we're in," and how can we find peace and contentment? This book gives some remarkably interesting answers.

By George F. Taubeneck  
(The "Inside Dope" Man)

America largely is a nation of middle-class people. Its elections are swung by independent voters, and its directions pointed by men and women who seldom raise their voices.

At the same time vociferous elements in our country usually represent biased pressure groups.

Most of the clamorous pleaders and writers who claim our attention have been partisans. As a rule they advocate either Left or Right wings of opinion. Caught between such crossfires, the normal citizen seldom sees his own position stated satisfactorily.

This book attempts to define the American Way fairly—and excitingly—in a manner which unselfish citizens may approve with confidence, and cheer with appreciation.

PEACE AND PROGRESS is presented as a reasonable synthesis of the attitudes and thinking of thousands of "grass roots" Americans to whom the writer has listened over a span of three decades. Additionally, it contains novel and stimulating ideas for doing something about the "fix we're in."

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Please send me . . . . copies of "Peace and Progress" @ \$2.95 each. (10 to 100 copies, 10% discount. 100 to 500 copies, 15% discount. 500 or more copies, 25% discount.)

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Peace and Progress

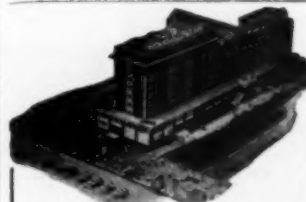
How To Be Happy Despite The Politicians

by George F. Taubeneck

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Charles W. Hoffner, sales manager for the Fishman Co. (standing), points out to a prospect that the new Model 58-2C3 Style-Master bathtub has its controls right on the front apron where they are handy. The 6-ft. 9-in. unit is particularly designed for heavy duty service, Hoffner said.



Mrs. Alec Dardick (left) and Mrs. Charles Bianco show how one of the Bianco Mfg. Co.'s new straight booths are intended to be used. No-Sag spring seats and padded backs are features of the booth.



Model Louise Johnson demonstrates the refrigerated drawer designed by Bastian-Blessing Co. for use with a griddle unit. The drawers will automatically slide shut when released. A. F. McMahon, Bastian-Blessing engineer, said that refrigeration will be provided from the same remote units that are used for other refrigerated equipment installed in the restaurant. But, for the drawers alone, a 1/4-hp. unit would suffice, he noted.

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# What Was New

At the Restaurant Show



Mel Gilman, sales manager of the Wilbur Curtis Co. of Los Angeles (left), holds one of the Curtis "Kwik-Change" electrical elements for coffee stoves. These can be changed by hand without the use of tools, as the display indicated by model Pam Martin shows.



Model Diane Hunter (left) demonstrates the removable spit on the "Barbo-Cutie" infrared barbecue roasting machine displayed by Bell Engineering Co. of Miami. Model Mary Ellingson notes that the machine provides full visibility on all four sides and will hold eight chickens. A warming griddle is on top. Cupped prongs are used to hold the chickens and make them appear larger and more appetizing, according to William Lieberman, Bell sales manager.

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## Refrigeration Problems and their solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

### Automatic Defrosting (7)

Another automatic defrosting method, which might be called an "indirect electric" hot-gas defrost, consists of a separate secondary refrigerant system that carries the heat from the point at which it is generated to the evaporator. The essentials of this system are shown in Fig. 7.

This system requires a special evaporator equipped with a circuit of several tubes in the evaporator. The hot gas is fed to this separate coil.

The hot gas is produced in a separate, specially designed refrigerant tank mounted outside the refrigerator and below the level of the evaporator. This generator tank is similar in appearance and size to a refrigerant receiver, and contains a quantity of liquid refrigerant.

This refrigerant may or may not be the same refrigerant used in the main system. It may be selected on its own merits without regard to the main refrigerant; for the two systems—the main refrigerating system

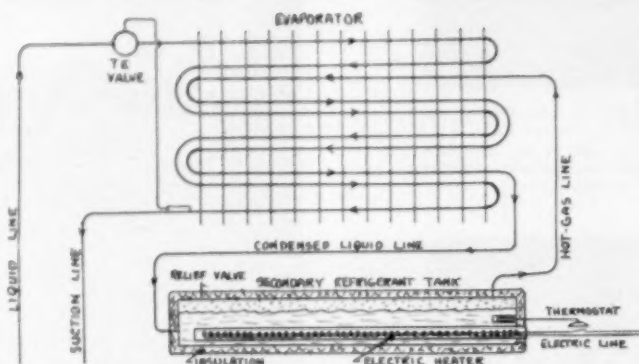


FIG. 7—Diagram of essentials of secondary refrigeration system which carries heat for "indirect electric" hot-gas defrost.

and this secondary defrost system—are entirely separate and have no connections into one another.

#### ELECTRIC HEAT APPLIED TO TANK

Heat is applied to the generator tank by means of an electric strip heater secured to the outside of the tank; or it could be an immersion type electric heater inserted into the refrigerant itself. The tank and heater are insulated to reduce loss of heat, and the cost of electricity.

The size of the electric heater varies of course with the size and temperature of the evaporator and the frequency and duration of defrost, but for a 1-hp. system with zero evaporator, the electric heater may be from 750 to 1,000 watts.

The electric heater supplies heat to the refrigerant, causing it to boil and throw off hot gas. This hot gas passes from the top of the tank upward to the separate defrost coil in the evaporator. There it is chilled by the cold evaporator, so it condenses. (The term "hot gas" as applied to this system is not strictly correct, for it implies that the vapor is superheated, whereas the vapor in this system is saturated.)

In condensing, it gives up its latent heat of vaporization, and it is this heat that melts the ice and frost off the evaporator. The condensed refrigerant, now a liquid, then flows by gravity back to the tank.

#### NO MOVING PARTS

The secondary system is quite simple, and consists essentially of the liquid refrigerant tank, the electric heater, and the separate coil in the evaporator. It contains no valves, compressor, or other internal mechanism.

Except for some pressure-drop through the coil and the liquid gas lines, the pressure is the same throughout the secondary system, and this pressure is the saturation pressure of the refrigerant used in the secondary system, corresponding to the temperature of the liquid in the tank.

Chiefly for convenience, the secondary refrigerant is usually the same refrigerant used in the main system; so the serviceman need not stock or carry a special refrigerant with him for the secondary system.

#### POSITIVE PRESSURE DURING REFRIGERATION CYCLE

It might seem that there would be some advantage in using one of the lower pressure refrigerants such as "Freon-21," so that the materials of which the secondary system are made, could be of less strength, but this overlooks the fact that during the normal refrigerating time of the main system, the electric heat is off and the pressure in the secondary defrost system is largely determined by evaporator temperature. If the low-pressure refrigerant were used, the pressure in the secondary system would be into a low vacuum.

If there were any leaks, air would enter, and the effectiveness of the secondary system would be impaired. Actually, therefore, some refrigerant, such as "Freon-12" whose saturation pressure at the temperature at which the evaporator normally operates, is above zero gauge, is most practical.

#### CONVENTIONAL TIMER CONTROL

The duration and frequency of defrost may be controlled by a timer to turn the electric heater on and off as defrosting is required. With the timer, a pressure or temperature control may be used, or in fact, most any of the usual control means.

The speed of defrost will be determined by the amount of heat imparted to the secondary system by the electric heater, and the temperature to which the secondary refrigerant is raised. Since the heat is supplied by the electric heater, the system does not "run out" of heat as is typical of the simple hot-gas defrost system.

When the timer calls for defrost, it stops the condensing unit and the evaporator fans, and turns on the electric heater of the secondary system. Defrosting continues until the timer turns off the electric heater and again starts the condensing unit and evaporator fans.

#### SECONDARY TEMPERATURE AFFECTS MAIN SYSTEM

During defrosting, the temperature of the evaporator rises, so the main suction temperature rises. There may be some overloading of the condensing unit motor when normal refrigeration is resumed after defrosting.

This could be reduced by having the timer close a liquid line solenoid valve in the main liquid line at the beginning of the defrost period and having the condensing unit stopped by a low pressure control. In this way the main system could pump down while the secondary system was heating up.

The timer could then open the liquid line solenoid at the end of the defrost period at the same time that the secondary heater is turned off.

The use of a pressure limiting type or gas charged expansion valve would further reduce excessive pressure at the start of normal refrigeration operation, following a defrost period.

However, with the secondary system of hot-gas defrost there is no problem of the main evaporator coil loading up with liquid condensed from the hot gas, as is true of the usual hot-gas defrost system. Also, there is not the accompanying compressor "slugging" due to this liquid refrigerant rushing back to the compressor when the hot-gas by-pass valve is closed, and normal refrigeration is resumed.

#### THERMOSTATIC CONTROL OF SECONDARY

One refrigerant to the secondary hot-gas defrost system is the use of a thermostat to control the temperature and pressure of the secondary refrigerant. This thermostat may be secured to the tank, or if the thermostat is the remote-bulb type, the bulb may be inserted in a well in the tank.

Its setting is not critical, but it should be high enough to assure a rapid defrost, but not high enough to create excessive pressure. A maximum cutoff setting should not exceed about 150°, which for "Freon-12" corresponds to a saturation pressure of approximately 225 p.s.i.g.

#### SAFETY DEVICE

If the thermostat should stick closed, and/or if the timer should stick in the closed position (closed for defrost) the tank of the secondary refrigerant might get so hot that the pressures could become dangerously high.

To guard against this hazard, some form of protective device should be used. Preferably, it should be a pressure-relief valve actuated directly from pressure, and also preferably, the discharge from this relief valve should be piped to the atmosphere.

A high pressure cut-out could also be used. It should be in series with the electric heater and should be set to open at a pressure (for "Freon-12") not to exceed about 235 p.s.i.g.

It is the author's opinion that a fusible plug would not be an adequate form of protection for this use, as it is actuated by temperature, and not directly by pressure.

#### CLOSED, BRINE DEFROST SYSTEM

On some large refrigerating systems, a defrost system similar to the secondary hot-gas system has been used, but instead of a primary refrigerant, a brine or a solution of water and alcohol or of water and ethylene glycol (permanent antifreeze) is used.

The brine or solution is heated in the tank and circulates through the separate coil in the evaporator either by a pump or simply by natural convection, thermo-siphon system.

The solution does not boil, but it is heated; and becoming lighter, it rises to the separate cold coil in the evaporator. There it cools and gives up its sensible heat only. Then, being colder, it is heavier, so it drops to the tank to be re-heated and re-circulated. This system is slower, and requires the circulation of large volumes of brine.

*One always has to be first... and in controls it's Ranco!*



First for accuracy and dependability... first choice of expert refrigeration men... more Ranco controls are in use than any other make. They eliminate call-backs and increase your profits on every replacement job. Ranco controls are available for over 4,000 replacement installations.

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WORLD'S LARGEST MANUFACTURERS OF REFRIGERATION CONTROLS



## Food Servers See Salad Case, Ice Maker



Lern, Inc. displayed its new counter model self-contained refrigerated display case for salads and desserts. Mrs. Fred Krasner, wife of Lern's vice president, checks over the display, which is illuminated by a fluorescent lamp across the top front. The 1/4-hp. Tecumseh unit is located at the rear of the unit.



Jesse C. Swartz, sales manager for Murphy & Miller, York distributor in Chicago (I.), explains to Clayton Karambelos of the Boston Candy Shop, Wilkes-Barre, Pa., how the new York model DER-2 "Flakice" machine produces clear, curved fragments of ice. It will make more than 300 lbs. per day.

## Small Store Must Make Best Use of Frozen Food Cases In Order To Compete with Big Stores

SOUTH BEND, Ind.—The operator of even the smallest food store should learn to make the best possible use of refrigeration equipment if he hopes to merchandise frozen foods with relatively as much effectiveness as large outlets, according to Norton Mumford, owner of Mumford's Home Store here.

"Grocers in many small stores such as ours, which measures 25 ft. by 40 ft., are missing the boat on frozen foods," Mumford declared. He asserted that many food store operators shove their frozen foods cases into a corner where customers cannot see them.

Mumford has rigged up a spotlight to shine down on a 7-ft. display case with a glass-enclosed top, which contains a variety of fresh-frozen items. Alongside this, a smaller portable case is devoted solely to frozen orange juice.

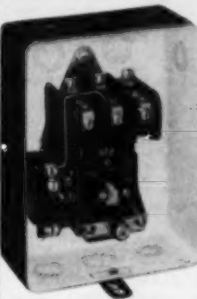
"If we had more space we would install more equipment and sell by the dozen to customers with home freezers," the grocer stated. "That's the real way to merchandise frozen foods."

Mumford said one of the most important rules followed in his store is constant supervision of stock to keep frozen foods cases full. A consistent effort is also made to plug frozen foods in the store's advertising.

The outlet operates on a 27% markup on most zero items, except orange juice and peas, Mumford disclosed. Since these are the most competitive items in the area, he added, the markup on them is set at 19%.

Lines carried include not only popular foods but also such items as cut-up poultry, frozen waffles, and frozen chocolate malted—termed a "really hot" item during the summer months.

Mumford explained that with frozen foods, it is particularly advisable to carry a varied assortment.



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**BULLETIN 709SP**  
Single Phase Across-the-Line Motor Starters

Do you need a single phase starter that can take it? The Bulletin 709SP solenoid starter is your answer. Its double break, silver alloy contacts never need cleaning or dressing. Its

simple, efficient mechanism will hold in during line voltage fluctuations. A starter you can install and forget! Write today, Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wisconsin.



# So easy to sell...

NEW



## Glass Front Display Case



MODEL SS-5310-D with superstructure. Also available without superstructure.

It's easy to sell — that's the big news from dealers on this new BTC Glass Front Display Case! Little wonder either — when this smartly-styled cabinet offers all of these sales-winning features:

**HANDSOME GLASS FRONT** shows off foods stored inside. Roomy, fluorescent-lighted interior holds a full 10 cubic feet in 53" x 30" floor space.

**EXCLUSIVE HIDE-A-WAY LID** slides under rear deck, out of sight, when cabinet is opened. Lid is self-contained and fully insulated.

**PLUS THESE BTC FEATURES** Quadruple Thermopane glass front — 4 compartments — full-color, 3-dimensional picture — gleaming white enamel finish — all-steel bonderized cabinet — 1/2 H.P. hermetic compressor — vapor-sealed insulation — lateral plate evaporators — 5-year compressor warranty.

**LEARN ALL THE FACTS** on the profitable BTC franchise by writing Brewer-Titchener today! Be sure to ask for a copy of BTC's Glass Front Display Case Bulletin.



**BIG CAPACITY CASE** BTC's 14 Cubic Foot Display Case. (Model DC-14.) Available with or without superstructure.

DISPLAY **BTC** CASES  
**The BREWER-TITCHENER Corporation**  
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## Why a Heat-Exchanger?

1. Increase overall capacity—reduce running time as much as 20%
2. Cool liquid refrigerant—eliminate flash gas—increased capacity of expansion valve
3. Prevent frost-back
4. Vaporize liquid in suction line

## why a Superior heat exchanger...

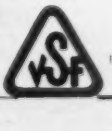
- ★ Accumulator—assures full vaporization of liquid. External equalizer connection where needed
- ★ Negligible pressure drop—excess restriction would nullify most benefits of a heat exchanger
- ★ High efficiency—copper heat transfer surfaces—maximum capacity per unit size
- ★ Heavy brass shell—sturdy construction—silver solder joints
- ★ Other applications—water cooling, chemical processing



For a more efficient installation—ask your wholesaler for a Superior heat exchanger!

**Superior**  
valve and fittings co.

Pittsburgh 26, Pa.



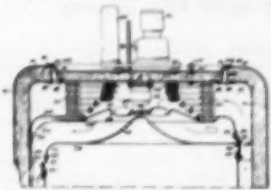
# PATENTS

Week of April 1  
(Continued)

**1,595,176. APPARATUS FOR AGING MEATS AND STORING VEGETABLES.** Harry M. McAdam, Redwood City, Calif., assignor to Hodges Research and Development Co., San Francisco, Calif., a corporation of California. Application Dec. 21, 1949. Serial No. 134,516. 17 Claims. (Cl. 62-4.)

1. In apparatus as defined and particularly for the aging of meats or the preservation of vegetables including an enclosure having insulated side walls, insulated rear and front walls, an insulated top, an insulated bottom, an opening in the insulated top, an insulated closure for the opening, a refrigerating system mounted on the closure, and evaporator coils in the refrigerating system supported beneath the closure and

extending into the enclosure, a fan carried by the closure for inducing air inwardly through the evaporator coils, a wall spaced from each of the side walls



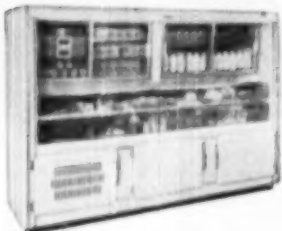
and extending from the rear to the front walls and terminating short of the top and bottom, a plurality of slots in said walls, a fan hinged to one of the side walls extending from the rear to the front walls and extending to the opposite spaced wall and turned upwardly within the evaporator coil and providing a nozzle in which said fan is mounted, a second fan hinged to the other spaced wall extending from rear to front walls and extending to the opposite spaced wall and forming an air deflecting cone beneath said fan, a removable rack in the enclosure supported by the bottom, and a third fan carried by said rack and extending from the rear to the front walls and extending from adjacent the bottom of one of said spaced walls to adjacent the bottom of the other of said spaced walls.

## PLENTY FOR FREE

For "easy-to-get" product information... use coupon on "What's New" page.

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## WARREN'S UNIQUE RCV PROVIDES 3-WAY SERVICE



The Warren RCV combination model provides dairy display, produce display, and storage all in one handsome, space-conserving refrigerator. The Warren RCV combination case (patent pending) is the only one of its kind on the market. Dairy products are displayed and served or self-served from the top compartment, equipped with double-glazed, Thermo-Clear, free-rolling doors. The middle open display for produce features Warren's own ideal refrigeration for fresh fruits and vegetables: the DEWMAKER. The DEWMAKER provides the cold moisture required to keep most produce garden fresh and salable. Spoilage and shrinkage of highly perishable produce can be forgotten with Warren's famous DEWMAKER. The bottom storage compartment, when equipped with display doors, can also double as an excellent merchandiser of such dairy staples as milk, cream, butter, and eggs.

Each of the three compartments has its own separately controlled refrigerating system. The Warren RCV is fully insulated with Ultra-Lite, and each compartment has a natural drain. The Copelametic Compressor is installed in the left bottom hinged-door compartment.

The Warren RCV combination model is 109 inches long, 72 1/2 inches high, and 31 1/2 inches wide. The framework is of select hardwood; front, ends, and top are of white porcelain.

For fully illustrated literature and detailed information, write to THE WARREN COMPANY, INCORPORATED, P.O. Box 1436, Atlanta 1, Georgia.

(Advertisement)

## DESIGNS

**166,299. CEILING VENTILATOR FOR HEATING AND AIR CONDITIONING.** Joseph B. Corbett, Cincinnati, Ohio, assignor to W. T. Tuma, Inc., Cincinnati, Ohio, a corporation of New York. Application Aug. 7, 1951. Serial No. 16,194. Term of patent 14 years. (Cl. D28-4.)



The ornamental design for a ceiling ventilator for heating and air conditioning, substantially as shown.

**166,302. AIR DIFFUSING OUTLET FOR VENTILATING SYSTEMS.** Francis J. Kurth, Hamaroneck, N. Y., assignor to Anemostat Corp. of America, New York, N. Y., a corporation of Delaware. Application Nov. 28, 1949. Serial No. 6,290. Term of patent 14 years. (Cl. D28-4.)



The ornamental design for an air diffusing outlet for ventilating systems, substantially as shown and described.

(To Be Continued)

## Crosley Introduces New 6-Cu. Ft. Chest Freezer

CINCINNATI—A new 6-cu. ft. Crosley Shelvador home freezer, model SDF-6, has been announced by the Crosley Div., Avco Mfg. Corp. The unit has a suggested list price of \$269.95.

The new freezer incorporates the popular "Soft-Glo" styling of the larger Shelvador freezers, and has a push-bar latch, built-in lock, adjustable temperature control, and a counterbalanced lid. The flat top edge of the food compartment makes a handy shelf for loading and rearranging food.

The unit is approximately 30 in. long, 27 in. wide, excluding hardware, and 39 in. high. It is capable of storing 210 lbs. of food. The cabinet is welded wrap-around, all-steel, treated for rust resistance. Outer finish is baked white enamel.

## Servel Plans for 2-Refrigerator Home--

(Concluded from Page 1, Column 2) tion but find it unable to cope with increasing family needs for food and other storage needs. We must make the two-refrigerator household as familiar as the two-car garage and I am certain the job can be done."

He explained that everything about the new refrigerator reflects an effort to remove the "geographical limitations" that surround the present household refrigerator.

Two basic Servel policies are revealed in the plans for introducing this new appliance, Jones said:

One is that Servel, along with other refrigerator manufacturers, must promote the use of two refrigerators in the home if the dangers and difficulties of market saturation are to be avoided.

The other is that Servel intends to remain a specialist in the field of

refrigeration rather than diversify its product line.

"We think there is room for a manufacturer who will take seriously his job of making refrigeration and bend all of his time and efforts in this direction," Jones declared. "Servel is a company with \$40,000,000 in assets and it will devote itself to the refrigeration business."

"We believe that if the future of automatic refrigeration is ahead of us, rather than behind us, it will be because one of the few companies specialize in it sufficiently to bring it to ultimate development."

He asserted that there have been too many bearish statements on refrigeration and that while he is not over-optimistic, "I feel we will get out of the product what we put into it." He said he wanted to "put more features and more fun" into the product, adding that this was nothing more than expediting the obsolescence of all earlier styles.

"Even the things that have been done to date with the household refrigerator have been only a drop in the bucket compared with what can be done," Mr. Jones said. "While the new type refrigerator we plan to introduce in the fall is evidence of our desire to really do something, it is only a part of our over-all plan. We are going to do something about the present kitchen refrigerator, too."

Jones has advocated this program for nearly a year, pointing out that with more than 40 of the 45 million homes in this country now equipped with automatic refrigeration, the normal industry production of one year of five million units would use up virtually all of this new market.

## CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$3.00 per insertion. Limit 50 words. 10¢ per word over 50.

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ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count. Please send payment with order.

### POSITIONS WANTED

SALES EXECUTIVE will be available after June first. Qualifications: merchandising and product promotion; heavy experience in refrigeration, air conditioning and heating; ability to handle, train and get along with people; extensive compressor experience; national following of wholesalers, distributors and manufacturing representatives; very aggressive; ability to assume heavy responsibilities. Financial remuneration must be in accordance with abilities. BOX 3991, Air Conditioning & Refrigeration News.

SERVICE ENGINEER with 27 years' experience in commercial and industrial refrigeration, air conditioning and heating, up to and including 300 ton systems. Wants permanent connection with company in southern Florida. At present, service manager for one of Chicago's leading contractors. BOX 3992, Air Conditioning & Refrigeration News.

AVAILABLE—HOLDS R. S. degree in mechanical engineering with four years' experience in refrigeration and air conditioning field, involving product development, application and sales. Applicant expects highly promising future for himself in his field. Desires interview with firm seeking a man with applicant's qualifications. BOX 4002, Air Conditioning & Refrigeration News.

### POSITIONS AVAILABLE

WHOLESALE OF refrigeration equipment requires outside salesman. Salary and commission. Located North Central. Would consider a refrigeration service man with good background. Write BOX 3995, Air Conditioning & Refrigeration News.

SALES ENGINEER—Refrigeration component manufacturer requires experienced man for Ohio area. Car necessary. Salary and monthly bonus. Real opportunity for right man. BOX 3997, Air Conditioning & Refrigeration News.

POSITION AVAILABLE. Man with refrigeration, cabinet design and sheet metal experience to assist in the development of low and high temperature refrigeration equipment. New England area. Give record of past employment, references and salary expected. BOX 3998, Air Conditioning & Refrigeration News.

### EQUIPMENT WANTED

WANTED NEW 1/2 to 1 1/2 ton air conditioners. Please wire or write giving name, year, model and serial number and best cash price. N. R. NORTHCUTT MFG. CO., 415 South Oaks St., San Angelo, Texas.

WANTED—USED kerosene refrigerators in good working condition. Quantities only. BOX 4000, Air Conditioning & Refrigeration News.

### EQUIPMENT FOR SALE

HERE'S YOUR chance to make a buy, limited quantity. 5 ton - 4 row - air conditioning coils with expansion valves, each \$69.50. 12 inch D. I. D. W. blowers for vertical mounting, including pulley, each \$15.25. All merchandise guaranteed and sold only on a "be satisfied or your money will be refunded." AIR CONDITIONING ENGINEERING CO., 2118 Locust Street, St. Louis 3, Mo.

FOR SALE—80 ton cooling equipment as follows: with magnetic starters and automatic controls, 2 Frick 4 cylinder Freon compressors 4 1/2, x 4 1/2, Model F.W. 440; 2 40 H.P.—308 volt—3 phase—40 cycle 1750 R.P.M. motors; 5 Aero fin coils, 4 pipes deep, 18 pipes high 8 1/2" x 36"; 1 80 ton Buffalo fan 33" x 42" delivery 20,000 C.F.M.; 3 new American coils model 2080, ROYAL REALTY CO., 312 38th Street, Union City, New Jersey.

F-12 CLS COMPRESSOR complete with motor and drive. No starter. New 10 h.p., 550 volt, 3 phase, 60 cycle—\$700.00. Factory rebuilt condensing unit F-12, 25 h.p., 230 volt D.C.—\$1,000.00. CARRIER-MAN-BELL, INC., 51 Wareham, Boston 18, Mass.

FOR SALE six Delco AGS25-1/2HP 25 cycle new motors. Any reasonable offer will be accepted. F. H. LANGENKAMP CO., South Bend, Indiana.

\$52 BUYS standard brand 1/2-HP open type or sealed type complete units. Other sizes up to 3 HP. Write for complete listings on units and parts, including Klaxon overload relays & 1 1/2. MANN REFRIGERATION SUPPLY CO., 440 Lafayette St., New York, New York 3, N. Y.

SACRIFICING 18 cu. ft. display freezers with superstructure and Thermopane glass sliding doors. Only \$371 each, f.o.b. New York. List price \$714. For complete details, write or call MANN REFRIGERATION SUPPLY CO., 440 Lafayette St., New York, Gramercy 3-8000.

BRAND NEW thermostatic exp. valves, TXF-Freon & TXM-Methyl 1/2 ton ea. \$3.95; also 2/494 Freon 1/2 ton, ea. \$2.75; 2/893 Methyl 1/2 ton, ea. \$5.75. AVX-automatics, ea. \$2.50; #1532 high press. control, ea. \$2.95; unit cooler #DU31T complete, ea. \$24.95. All valves normal temp. Sold with money back guarantee. R & R EQUIPMENT CO., 2724 Third Ave., Bronx, N. Y.

BRAND NEW industrial thermometers of popular make 20+ to 240 F. 9" scale straight & 90 deg. back angle 3 1/2" & 6" stem air-dirt & socket type ea. \$8.75, 6-9/16" scale, miniature type 3 1/2" stem with socket, 90 deg. back angle 40+ to 110 F. ea. \$6.75, 6-recording thermometers 25+ to 220 F. models 75-J-168 & 340 MF ea. \$75.00. R & R EQUIPMENT CO., 2724 Third Ave., Bx., N. Y.

FOR SALE—brand new 1/2 H.P. hermetic compressors, Model S-88-8 1/2" high. Complete with relay and overload \$44.50. Send for your list on driers, valves, belts, pressure controls, fittings, relays. Supplies and parts at great savings. Sold on money back guarantee. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

### BUSINESS OPPORTUNITIES

ESTABLISHED COMMERCIAL refrigeration & air conditioning business for sale. Distributor for nationally known lines. Inventory approximately \$10,000 plus trucks, tools & equipment. In the northwest, west of the Rockies in city of 150,000 population. Reason for selling, health. 1951 sales \$125,000. BOX 3979, Air Conditioning & Refrigeration News.

APPLIANCE and commercial refrigeration business for sale. Growing community, forty miles from San Francisco & Oakland. Leading brand franchises only. Excellent year 'round climate. For further information, write BOX 3983, Air Conditioning & Refrigeration News.

FOR SALE—Long established butcher supply and equipment business in southwestern New York and northeastern Pennsylvania. Hussmann Refrigeration, U. S. Slicing Machine Co. and Bulman Franchises, plus complete line of butchers' and grocers' supplies. Must sell on account of old age at inventory price. Approximately \$10,000. Write BOX 3990, Air Conditioning & Refrigeration News.

PROFITABLE DISTRIBUTORSHIP in Arkansas available. We represent a nationally known manufacturer of refrigerated food store equipment. Must qualify with factory. Average net profit per year for the past six years, over \$25,000.00 per year. Partners retiring. BOX 3996, Air Conditioning & Refrigeration News.

FOR SALE—Appliance business sales and service, located in the fast growing city of Miami, Florida, has Frigidaire and other leading lines. Established over 20 years in same location—good lease. Cash required approximately \$13,000.00. BOX 3999, Air Conditioning & Refrigeration News.

GOOD GOING refrigeration, electric wiring and appliance repair shop, including authorized Bendix service, for sale in pleasant little town of 5,000 population, located in Wyoming close to Yellowstone Park. Because of other interests, will sell for present inventory, \$200.00 will handle. BOX 4001, Air Conditioning & Refrigeration News.

### MISCELLANEOUS

HERMETICALLY SEALED units remanufactured. One year warranty. Norge all models. Hotpoint, G. E. (bottom units), \$48.50. Coldspot, Frigidaire, Westinghouse, Crosley, Kelvinator, to and including 1/2 H.P. \$45.00. Other models priced on request. You ship freight prepaid. Return shipment forwarded C.O.D. NORD HERMETIC CO., 1701 San Leandro Blvd., San Leandro, California.

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## Manitowoc

SUB-ZERO FREEZERS

Watch for this "Treasure-Island" ad in May and June issues of

Better Homes and Country Gentleman



Gentlemen: Please rush me all the details on your line of Sub-Zero freezers.

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Company \_\_\_\_\_

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SPRING and SUMMER  
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## What Restaurant Operators Saw In Chicago



American Gas Machine Co.'s new automatic storage type "Super Fisker" ice maker catches the eye of tavern owner Alex Bonvechio (l.) so R. S. Lickteig demonstrates.



William Fogel, president of Fogel Refrigerator Co. (l.), shows Ken McGaw of Chicago his company's new sectional aluminum walk-in cooler that can be enlarged at any time by adding more standard size sections. Front sections have reach-in type sliding or hinged doors with Thermopane glass. The cooler is made for either standard or low temperature use.



Soft ice cream from a "P" model direct dispensing "Electro Freeze" machine made by Port Morris Machine & Tool Works draw satisfied smiles from models (l. to r.) Phoebe Peters, Mae Munro, and Pat Roche.



Busy demonstrating the new Rescor fresh defroster for bobbycabs and low temperature display cases is B. A. Sherman of Refrigeration Equipment Sales (l.). Edward L. McNulty, Superior, Wis. restaurant operator, is the interested prospect.



L. C. Stuffs, sales manager of Monitor Process Corporation (l.), points out the stainless steel "tube-faucet" that inserts into a standard milk can, a key feature in the firm's refrigerated bulk milk dispenser. D. C. Greiner, general manager, is at right.

Readers desiring additional information on any of the new products shown in these pictures taken at the National Restaurant Exposition are invited to write to:

**Information Center**  
Air Conditioning & Refrigeration News  
450 W. Fort St.  
Detroit 26, Mich.

More pictures of products exhibited will be found on pages 9, 17, 19, and 21.



Harold Binder, representative of Stainless Food Equipment Co. (left), shows C. W. Horan, Jr. and his wife, operator of the Colonial Cafeterias in Fort Worth, Texas, his company's new "Lexington" refrigerated dessert case with water station. Both the storage and lower display sections are refrigerated. The top display section is not refrigerated.



Getting the pitch on the new Foster Refrigerator Corp. 25-cu. ft. two temperature reach-in refrigerator is Pat Benoit (l.) of Toronto, Ont., Can. William J. Whalen, Foster assistant sales manager, points out the flat surfaced slotted aluminum shelves and that the box has 8 cu. ft. of low temperature and 17 cu. ft. of high temperature space.



Alice Sudin of St. Louis inspects Tyler Fixture Corp.'s new sectional type 60-cu. ft. reach-in freezer for frozen food storage in markets and institutions. At left is the firm's new standard 30-cu. ft. reach-in freezer, a self-contained unit.



Fred H. Kibler, Lipman sales manager, shows the new small capacity (100 lbs. per day) ice cube with 50-lb. storage bin to Lewis Reitz, Denver restaurant supply dealer.

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74 different models in stock  
FACTORY DISTRIBUTORS  
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**BASICALLY NEW, PATENTED METHOD  
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Under new carbonation method, ordinary tap water looses at high velocity in pressure tank containing CO<sub>2</sub> gas. Special jet intakes cause breakdown of water surface tension, forms countless bubbles, filled and surrounded with CO<sub>2</sub> gas. No refrigeration is necessary, yet continuous 100 or 500 gallon hourly production is assured with resulting carbonated beverage that's many times more active and zestful.



U. S. PATENT No. 2,586,677

**EXCLUSIVE NEW JET TURBULENT  
CARBONATOR MAKES  
S-U-P-E-R-C-H-A-R-G-E-D  
BEVERAGES FASTER  
WITH LESS EQUIPMENT!!!**

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This sensational new patented principle—exclusively the property of Carbonic Dispenser, Inc. . . . produces a higher degree of carbonation twice as fast as any method. No mechanical agitators or pre-cooling is necessary.  
Get the full facts now by writing Carbonic Dispenser. You'll want to know how these remarkable new super-charger carbonators affect your business by producing more palatable beverages in less space with less trouble at less cost.



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**Built TO LAST A LIFETIME**



**The FAMOUS P-H  
DRY BEVERAGE COOLERS**  
CHOICE OF PORCELAIN OR  
STAINLESS STEEL EXTERIORS

For fast, economical, uniform cooling you can't beat the new P-H Dry Beverage Cooler. In over 20 years of field testing the patented P-H forced updraft cooling system has been proved superior to any other type. Actually built to last a "Lifetime" the exteriors of these attractive streamlined coolers are finished in black porcelain with stainless steel working surfaces . . . also available with stainless steel exteriors. Your choice of 30", 6", 8" or 10" models with bar tops if desired . . . both remote and self contained.

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